

**For manual FHP plasma panel see: 3122 785 14580**

**For manual SDI plasma panel see: 3122 785 14990**

**For manual LGE plasma panel see: 3122 785 15590**



# Service Manual

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# 1. Technical Specifications, Connections, and Chassis Overview

## Index of this chapter:

- 1.1 Technical Specifications
- 1.2 Connection Overview
- 1.3 Chassis Overview

## Notes:

- Data below can deviate slightly from the actual situation, due to the different set executions
- Specifications are indicative (subject to change).

## 1.1.3 Miscellaneous

|                                    |             |
|------------------------------------|-------------|
| Power supply:                      |             |
| - Mains voltage (V <sub>AC</sub> ) | : 110 - 240 |
| - Mains frequency (Hz)             | : 50/60 Hz  |
| Ambient conditions:                |             |
| - Temperature range (°C)           | : +5 to +40 |
| - Maximum humidity                 | : 90% R.H.  |

## 1.1 Technical Specifications

### 1.1.1 Vision

|                                        |                                          |
|----------------------------------------|------------------------------------------|
| Display type                           | : Plasma FHP (42")                       |
|                                        | : Plasma SDI (50")                       |
| Screen size                            | : 42" (107 cm), 16:9                     |
|                                        | : 50" (127 cm), 16:9                     |
| Resolution (HxV pixels)                | : 1024(*3)x1080i (42")                   |
|                                        | : 1366(*3)x768p (50")                    |
| Typ. contrast ratio                    | : 10000:1                                |
| Min. light output (cd/m <sup>2</sup> ) | : 1200 (42")                             |
|                                        | : 1500 (50")                             |
| Viewing angle (HxV degrees)            | : 160x160                                |
| Tuning system                          | : PLL                                    |
| TV Colour systems                      | : PAL                                    |
|                                        | : DVB-T                                  |
| Video playback                         | : PAL                                    |
|                                        | : SECAM                                  |
|                                        | : NTSC                                   |
| Cable                                  | : Unscrambled digital cable - QAM        |
|                                        | : Digital cable ready - Common Interface |
| Tuner bands                            | : VHF                                    |
|                                        | : UHF                                    |
|                                        | : S-band                                 |
|                                        | : Hyper-band                             |
| Supported video formats                | : 640x480i - 1fH                         |
|                                        | : 640x480p - 2fH                         |
|                                        | : 720x576i - 1fH                         |
|                                        | : 720x576p - 2fH                         |
|                                        | : 1280x720p - 3fH                        |
|                                        | : 1920x1080i - 2fH                       |
| Supported computer formats             | : 640x480 @ 60Hz                         |
|                                        | : 800x600 @ 60Hz                         |
|                                        | : 1024x768 @ 60Hz                        |
|                                        | : 1366x768 @ 60Hz                        |

## Power consumption (values are indicative)

|                        |                  |
|------------------------|------------------|
| - Normal operation (W) | : ≈ 325 (42")    |
|                        | : ≈ t.b.d. (50") |
| - Standby (W)          | : < 2            |

|                          |                     |
|--------------------------|---------------------|
| Dimensions (WxHxD in cm) | : 114x80x11.4 (42") |
|                          | : 132x92x11.4 (50") |

|                 |                |
|-----------------|----------------|
| Weight (kg/lbs) | : t.b.d. (42") |
|                 | : t.b.d. (50") |

### 1.1.2 Sound

|                                   |                               |
|-----------------------------------|-------------------------------|
| Sound systems                     | : AV Stereo                   |
|                                   | : FM/FM (5.5-5.74) (B/G)      |
|                                   | : NICAM B/G (5.5-5.85)        |
|                                   | : NICAM D/K (6.5-5.85) (Hung) |
|                                   | : NICAM I (6.0-6.52)          |
| Maximum power (W <sub>RMS</sub> ) | : 2 x 15                      |



## 1.2 Connection Overview

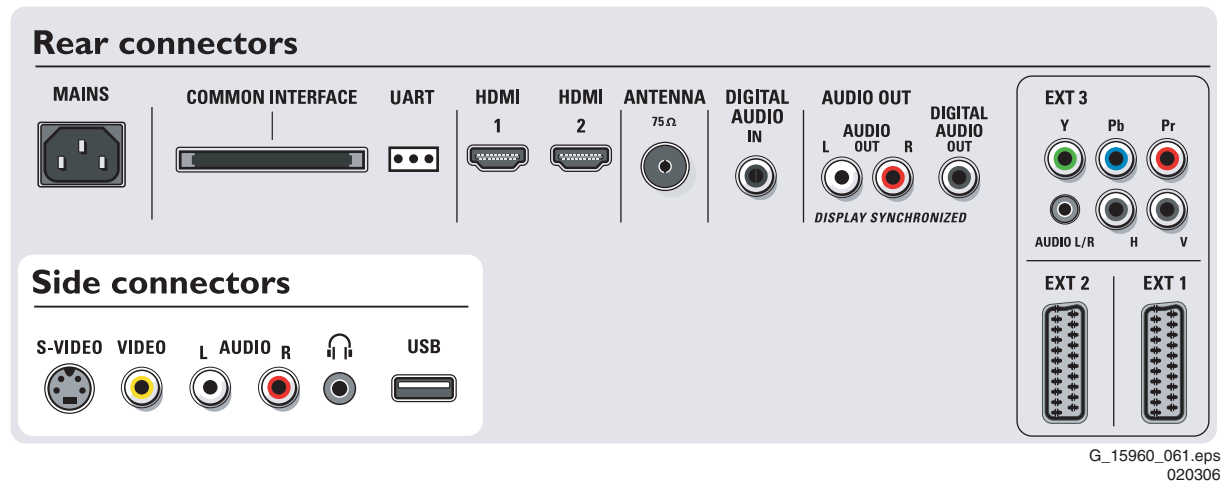


Figure 1-1 Side and rear I/O connections

**Note:** The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

### 1.2.1 Side Connections

#### S-Video (Hosiden): Video Y/C - In

|   |            |                              |   |
|---|------------|------------------------------|---|
| 1 | - Ground Y | Gnd                          | ⏏ |
| 2 | - Ground C | Gnd                          | ⏏ |
| 3 | - Video Y  | 1 V <sub>PP</sub> / 75 ohm   | ⊕ |
| 4 | - Video C  | 0.3 V <sub>PP</sub> / 75 ohm | ⊕ |

#### Cinch: Video CVBS - In, Audio - In

|    |              |                                |   |
|----|--------------|--------------------------------|---|
| Ye | - Video CVBS | 1 V <sub>PP</sub> / 75 ohm     | ⊕ |
| Wh | - Audio L    | 0.5 V <sub>RMS</sub> / 10 kohm | ⊕ |
| Rd | - Audio R    | 0.5 V <sub>RMS</sub> / 10 kohm | ⊕ |

#### Headphone - Out

|    |             |                      |   |
|----|-------------|----------------------|---|
| Bk | - Headphone | 32 - 600 ohm / 10 mW | ⏏ |
|----|-------------|----------------------|---|

#### USB2.0

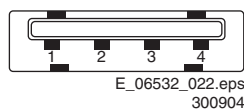


Figure 1-2 USB (type A)

|   |            |     |
|---|------------|-----|
| 1 | - +5V      | ⊕   |
| 2 | - Data (-) | ⊕   |
| 3 | - Data (+) | ⊕   |
| 4 | - Ground   | Gnd |

### 1.2.2 Rear Connections

#### Common Interface

|     |                    |   |
|-----|--------------------|---|
| 68p | - See diagram B10A | ⊕ |
|-----|--------------------|---|

#### Service Connector (UART)

|   |           |          |   |
|---|-----------|----------|---|
| 1 | - UART_TX | Transmit | ⊕ |
| 2 | - Ground  | Gnd      | ⏏ |
| 3 | - UART_RX | Receive  | ⊕ |

#### HDMI 1 & 2: Digital Video, Digital Audio - In

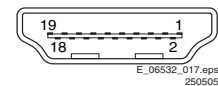


Figure 1-3 HDMI (type A) connector

|    |           |                 |   |
|----|-----------|-----------------|---|
| 1  | - D2+     | Data channel    | ⊕ |
| 2  | - Shield  | Gnd             | ⏏ |
| 3  | - D2-     | Data channel    | ⊕ |
| 4  | - D1+     | Data channel    | ⊕ |
| 5  | - Shield  | Gnd             | ⏏ |
| 6  | - D1-     | Data channel    | ⊕ |
| 7  | - D0+     | Data channel    | ⊕ |
| 8  | - Shield  | Gnd             | ⏏ |
| 9  | - D0-     | Data channel    | ⊕ |
| 10 | - CLK+    | Data channel    | ⊕ |
| 11 | - Shield  | Gnd             | ⏏ |
| 12 | - CLK-    | Data channel    | ⊕ |
| 13 | - n.c.    |                 |   |
| 14 | - n.c.    |                 |   |
| 15 | - DDC_SCL | DDC clock       | ⊕ |
| 16 | - DDC_SDA | DDC data        | ⊕ |
| 17 | - Ground  | Gnd             | ⏏ |
| 18 | - +5V     |                 | ⊕ |
| 19 | - HPD     | Hot Plug Detect | ⊕ |
| 20 | - Ground  | Gnd             | ⏏ |

#### Aerial - In

|   |                 |              |   |
|---|-----------------|--------------|---|
| - | - IEC-type (EU) | Coax, 75 ohm | ⏏ |
|---|-----------------|--------------|---|

#### DIGITAL AUDIO Cinch: S/PDIF - In

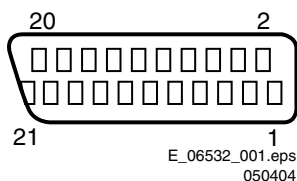
|    |           |                                   |   |
|----|-----------|-----------------------------------|---|
| Bk | - Coaxial | 0.2 - 0.6V <sub>PP</sub> / 75 ohm | ⊕ |
|----|-----------|-----------------------------------|---|

#### AUDIO OUT Cinch: Audio - Out

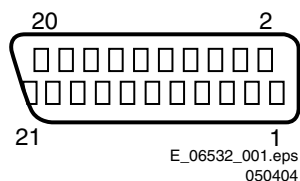
|    |           |                                |   |
|----|-----------|--------------------------------|---|
| Wh | - Audio L | 0.5 V <sub>RMS</sub> / 10 kohm | ⊕ |
| Rd | - Audio R | 0.5 V <sub>RMS</sub> / 10 kohm | ⊕ |

#### DIGITAL AUDIO Cinch: S/PDIF - Out

|    |           |                                   |   |
|----|-----------|-----------------------------------|---|
| Bk | - Coaxial | 0.2 - 0.6V <sub>PP</sub> / 75 ohm | ⊕ |
|----|-----------|-----------------------------------|---|

**EXT1: Video RGB/YC - In, CVBS - In/Out, Audio - In/Out****Figure 1-4 SCART connector**

|    |                    |                                                            |
|----|--------------------|------------------------------------------------------------|
| 1  | - Audio R          | 0.5 V <sub>RMS</sub> / 1 kohm                              |
| 2  | - Audio R          | 0.5 V <sub>RMS</sub> / 10 kohm                             |
| 3  | - Audio L          | 0.5 V <sub>RMS</sub> / 1 kohm                              |
| 4  | - Ground Audio     | Gnd                                                        |
| 5  | - Ground Blue      | Gnd                                                        |
| 6  | - Audio L          | 0.5 V <sub>RMS</sub> / 10 kohm                             |
| 7  | - Video Blue/C-out | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 8  | - Function Select  | 0 - 2 V: INT<br>4.5 - 7 V: EXT 16:9<br>9.5 - 12 V: EXT 4:3 |
| 9  | - Ground Green     | Gnd                                                        |
| 10 | - n.c.             |                                                            |
| 11 | - Video Green      | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 12 | - n.c.             |                                                            |
| 13 | - Ground Red       | Gnd                                                        |
| 14 | - Ground P50       | Gnd                                                        |
| 15 | - Video Red/C      | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 16 | - Status/FBL       | 0 - 0.4 V: INT<br>1 - 3 V: EXT / 75 ohm                    |
| 17 | - Ground Video     | Gnd                                                        |
| 18 | - Ground FBL       | Gnd                                                        |
| 19 | - Video CVBS/Y     | 1 V <sub>PP</sub> / 75 ohm                                 |
| 20 | - Video CVBS/Y     | 1 V <sub>PP</sub> / 75 ohm                                 |
| 21 | - Shield           | Gnd                                                        |

**EXT2: Video RGB/YC - In, CVBS - In/Out, Audio - In/Out****Figure 1-5 SCART connector**

|    |                    |                                                            |
|----|--------------------|------------------------------------------------------------|
| 1  | - Audio R          | 0.5 V <sub>RMS</sub> / 1 kohm                              |
| 2  | - Audio R          | 0.5 V <sub>RMS</sub> / 10 kohm                             |
| 3  | - Audio L          | 0.5 V <sub>RMS</sub> / 1 kohm                              |
| 4  | - Ground Audio     | Gnd                                                        |
| 5  | - Ground Blue      | Gnd                                                        |
| 6  | - Audio L          | 0.5 V <sub>RMS</sub> / 10 kohm                             |
| 7  | - Video Blue/C-out | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 8  | - Function Select  | 0 - 2 V: INT<br>4.5 - 7 V: EXT 16:9<br>9.5 - 12 V: EXT 4:3 |
| 9  | - Ground Green     | Gnd                                                        |
| 10 | - Easylink P50     | 0 - 5 V / 4.7 kohm                                         |
| 11 | - Video Green      | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 12 | - n.c.             |                                                            |
| 13 | - Ground Red       | Gnd                                                        |
| 14 | - Ground Data      | Gnd                                                        |
| 15 | - Video Red/C      | 0.7 V <sub>PP</sub> / 75 ohm                               |
| 16 | - Status/FBL       | 0 - 0.4 V: INT<br>1 - 3 V: EXT / 75 ohm                    |
| 17 | - Ground Video     | Gnd                                                        |
| 18 | - Ground FBL       | Gnd                                                        |
| 19 | - Video CVBS/Y     | 1 V <sub>PP</sub> / 75 ohm                                 |
| 20 | - Video CVBS/Y     | 1 V <sub>PP</sub> / 75 ohm                                 |
| 21 | - Shield           | Gnd                                                        |

**EXT3: Cinch: Video YPbPrHV- In**

|    |            |                              |
|----|------------|------------------------------|
| Gn | - Video Y  | 1 V <sub>PP</sub> / 75 ohm   |
| Bu | - Video Pb | 0.7 V <sub>PP</sub> / 75 ohm |
| Rd | - Video Pr | 0.7 V <sub>PP</sub> / 75 ohm |
| Bk | - H-sync   | 0 - 5 V                      |
| Bk | - V-sync   | 0 - 5 V                      |

**EXT3: Mini Jack: Audio - In**

|    |           |                                |
|----|-----------|--------------------------------|
| Rd | - Audio R | 0.5 V <sub>RMS</sub> / 10 kohm |
| Wh | - Audio L | 0.5 V <sub>RMS</sub> / 10 kohm |

### 1.3 Chassis Overview

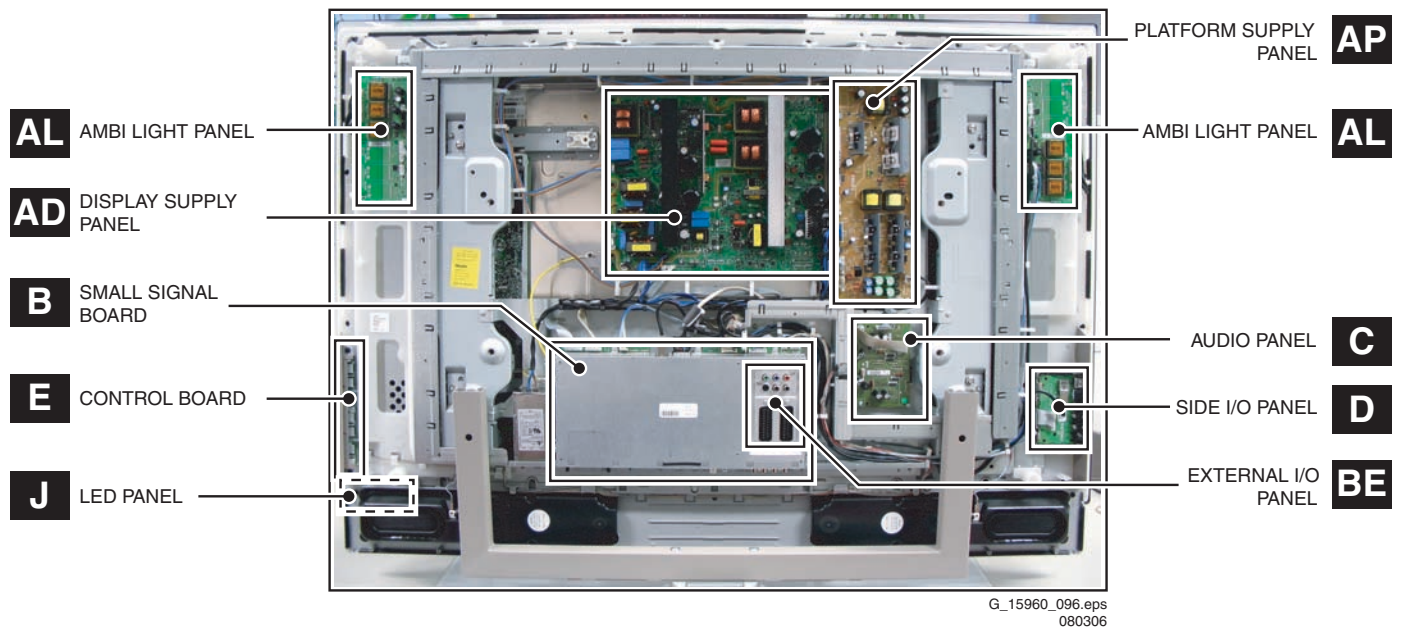


Figure 1-6 PWB/CBA locations (42-inch model)

## 2. Safety Instructions, Warnings, and Notes

### Index of this chapter:

- 2.1 Safety Instructions
- 2.2 Warnings
- 2.3 Notes

### 2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains/AC Power via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the Mains/AC Power lead for external damage.
- Check the strain relief of the Mains/AC Power cord for proper function.
- Check the electrical DC resistance between the Mains/AC Power plug and the secondary side (only for sets that have a Mains/AC Power isolated power supply):
  1. Unplug the Mains/AC Power cord and connect a wire between the two pins of the Mains/AC Power plug.
  2. Set the Mains/AC Power switch to the "on" position (keep the Mains/AC Power cord unplugged!).
  3. Measure the resistance value between the pins of the Mains/AC Power plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains/AC Power plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

### 2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

### 2.3 Notes

#### 2.3.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⊥), or hot ground (↕), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the

Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).

- Where necessary, measure the waveforms and voltages with (⏏) and without (⏏) aerial signal. Measure the voltages in the power supply section both in normal operation (⏏) and in stand-by (⏏). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

#### 2.3.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads ( $\mu$ =  $\times 10^{-6}$ ), nano-farads (n=  $\times 10^{-9}$ ), or pico-farads (p=  $\times 10^{-12}$ ).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (\*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

#### 2.3.3 Rework on BGA (Ball Grid Array) ICs

##### General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

##### Device Removal

As is the case with any component that, is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB. To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

##### Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA. Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.

After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.

**Note:** Do not apply solder paste, as this has been shown to result in problems during re-soldering.

### Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

### More Information

For more information on how to handle BGA devices, visit this URL: [www.atyourservice.ce.philips.com](http://www.atyourservice.ce.philips.com) (needs subscription, not available for all regions). After login, select "Magazine", then go to "Repair downloads". Here you will find Information on how to deal with BGA-ICs.

## 2.3.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

**Identification:** The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).

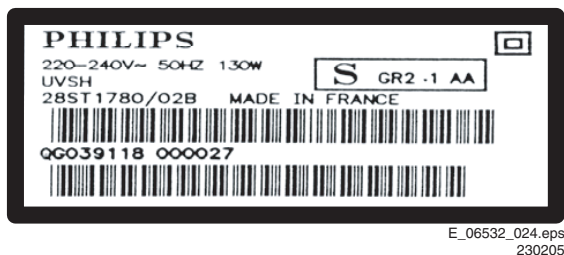


Figure 2-1 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

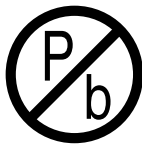


Figure 2-2 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to

**avoid** mixed regimes. If this cannot be avoided, carefully clear the solder-joint from old tin and re-solder with new tin.

- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).  
**Do not re-use BGAs at all!**
- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:

- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid mix of two alloys).

**Caution:** For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website [www.atyourservice.ce.philips.com](http://www.atyourservice.ce.philips.com) (needs subscription, but is not available for all regions). You will find this and more technical information within the "Magazine", chapter "Repair downloads". For additional questions please contact your local repair help desk.

## 2.3.5 Alternative BOM identification

In September 2003, Philips CE introduced a change in the way the serial number (or production number, see Figure 2-1) is composed. From this date on, the **third digit** in the serial number (example: AG2B0335000001) indicates the number of the alternative BOM (Bill of Materials used for producing the specific model of TV set). It is possible that the same TV model on the market is produced with e.g. two different types of displays, coming from two different O.E.M.s.

By looking at the third digit of the serial number, the service technician can see if there is more than one type of B.O.M. used in the production of the TV set he is working with. He can then consult the At Your Service Web site, where he can type in the Commercial Type Version Number of the TV set (e.g. 28PW9515/12), after which a screen will appear that gives information about the number of alternative B.O.M.s used. If the third digit of the serial number contains the number 1 (example: AG1B0335000001), then there is only one B.O.M. version of the TV set on the market. If the third digit is a 2 (example: AG2B0335000001), then there are two different B.O.M.s. **Information about this is important for ordering the correct spare parts!**

For the third digit, the numbers 1...9 and the characters A...Z can be used, so in total: 9 plus 26 = 35 different B.O.M.s can be indicated by the third digit of the serial number.

## 2.3.6 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

### 3. Directions for Use

You can download this information from the following websites:

<http://www.philips.com/support>

<http://www.p4c.philips.com>



## 4. Mechanical Instructions

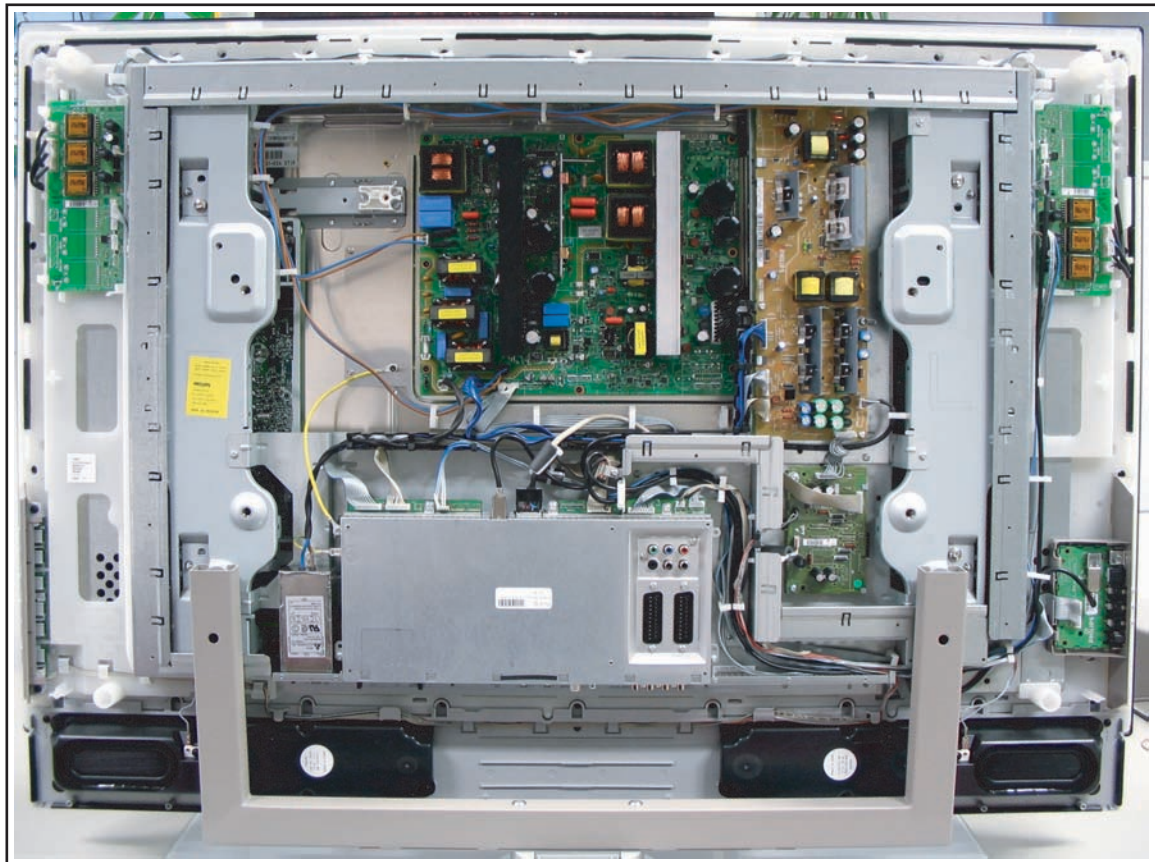
### Index of this chapter:

- 4.1 Cable Dressing
- 4.2 Service Positions
- 4.3 Assy/Panel Removal
- 4.4 Set Re-assembly

### Notes:

- Figures below can deviate slightly from the actual situation, due to the different set executions.
- Follow the disassemble instructions in described order.

### 4.1 Cable Dressing



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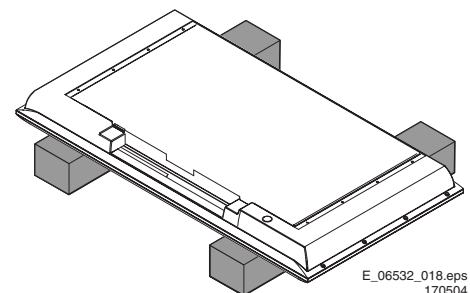
Figure 4-1 Cable dressing (42-inch model)

### 4.2 Service Positions

For easy servicing of this set, there are a few possibilities created:

- The buffers from the packaging.
- Foam bars (created for service).
- Aluminium service stands (created for Service).

#### 4.2.1 Foam Bars



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Figure 4-2 Foam bars

The foam bars (order code 3122 785 90580 for two pieces) can be used for all types and sizes of Flat TVs. By laying the TV face down on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. By placing a mirror under the TV, you can monitor the screen.

#### 4.2.2 Aluminium Stands

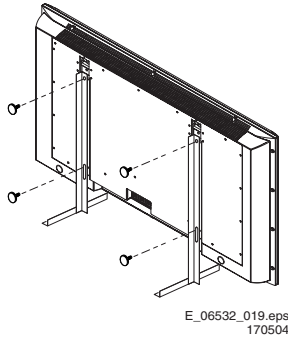


Figure 4-3 Aluminium stands (drawing of Mkl)

The new MkII aluminium stands (not on drawing) with order code 3122 785 90690, can also be used to do measurements, alignments, and duration tests. The stands can be (dis)mounted quick and easy by means of sliding them in/out the "mushrooms". The new stands are backwards compatible with the earlier models.

**Important:** For (older) FTV sets without these "mushrooms", it is obligatory to use the provided screws, otherwise it is possible to damage the monitor inside!.

### 4.3 Assy/Panel Removal

#### 4.3.1 Metal Back Plate

Disconnect the Mains/AC Power cord before you remove the rear cover!

**Note:** a sticker containing the type number [1] has been added on the right lower corner of the rear cover, allowing the customer to read the number without lifting the set from the wall.

1. Place the TV set upside down on a table top, using the foam bars (see part "Foam Bars").  
**Caution:** do **not** put pressure on the display, but let the monitor lean on the Front cover.
2. Remove T10 tapping screws [2] from the top, centre, bottom, left and right side of the back plate.
3. Remove "mushrooms" [3] from the back plate.
4. Lift the back plate from the TV. Make sure that wires and flat foils are not damaged while lifting the back plate.

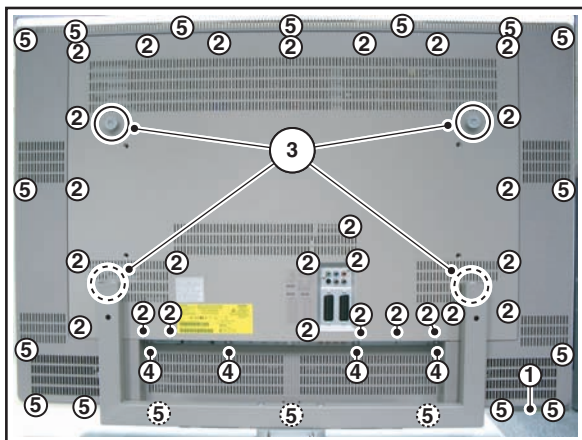


Figure 4-4 Metal back plate and rear cover removal

#### 4.3.2 Rear Cover

1. Remove the T10 tapping screws [4] underneath the main I/O panel that hold the rear cover.
2. Remove the T10 parker screws [5] around the edges of the rear cover.
3. Lift the metal rear cover from the set. Make sure that wires and flat foils are not damaged.

#### 4.3.3 Speaker

After removing the rear cover, you gain access to the speakers. Each speaker is fixed with four T10 screws [1]. See Figure "Speaker removal". After removal of these screws, the speakers can be removed.

**Caution:** never disconnect the speakers with a playing set, because otherwise the class-D audio amplifiers could be damaged!

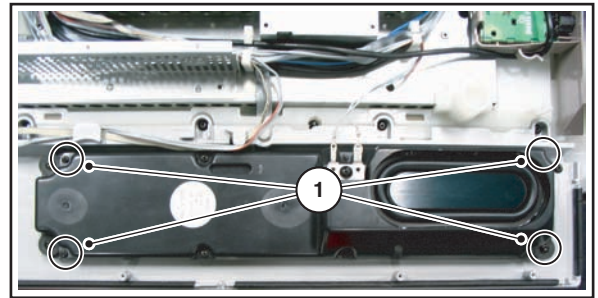


Figure 4-5 Speaker removal

#### 4.3.4 Speaker Frame

After the speakers have been removed, the plastic speaker frame underneath the set can be removed. See Figure "Speaker frame removal".

1. Remove the cables that are guided by the speaker frame from its clamps [1].
2. Remove parker T10 screws [2] that hold the frame and pull the frame downwards.

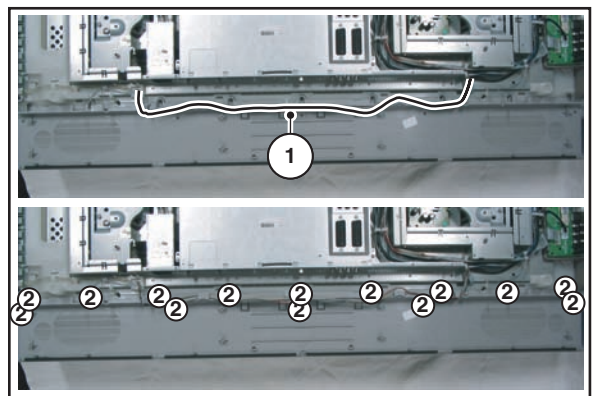


Figure 4-6 Speaker frame removal

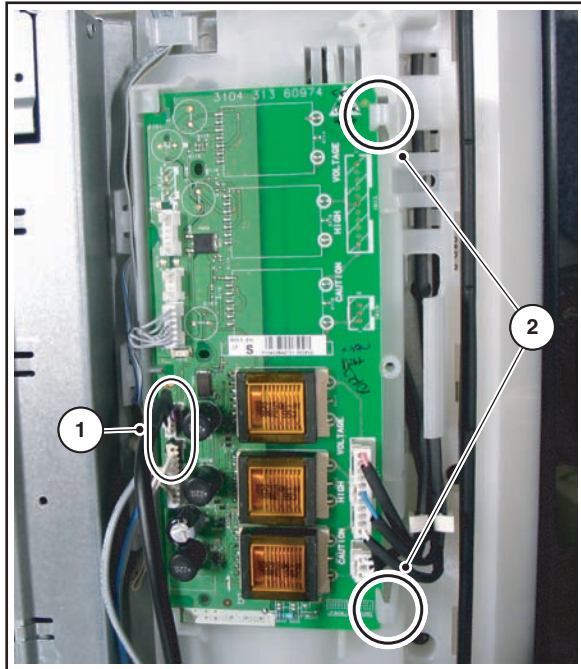
**Note:** the speaker frame cannot be removed without the speakers being removed first, since on each side of the frame there is a hidden screw underneath the speaker.



#### 4.3.5 AmbiLight Inverter Panel

There are two AmbiLight Inverter Panels used in this set. The instructions to remove the right one (seen from the back side of the set) are as follows:

1. Disconnect the cables [1] from the panel.
  2. Push back the clamps [2] on the right side that hold the assy.
  3. Take out the panel (it hinges on the left side).
- When defective, replace the whole unit.

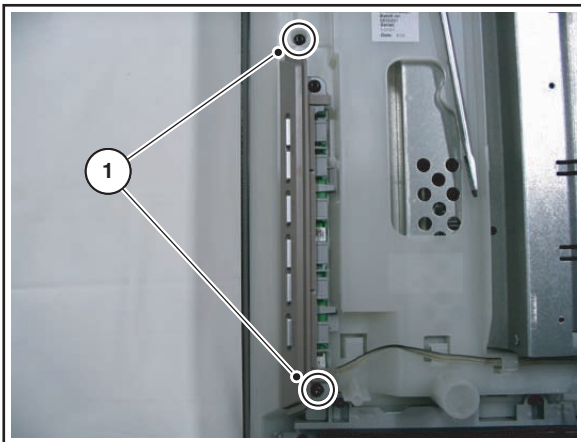


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Figure 4-7 AmbiLight right side inverter panel removal

#### 4.3.6 Control Panel

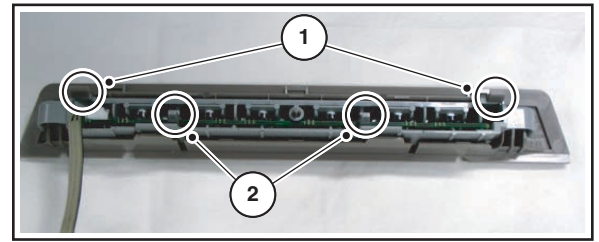
The Control Panel can be taken out by removing the two T10 screws [1] that hold the plastic frame. See Figure "Control panel removal". The cable can **not** be disconnected from the assy at this moment. While still connected to the assy, the cable must now be released from the two clamps on the chassis nearest to the assy.



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Figure 4-8 Control panel removal

The assy is packed into **two** plastic frames. To unpack the inner frame, lift the two clamps [1] of the outer frame and take the inner frame out. See Figure "Control panel frame removal".



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Figure 4-9 Control panel frame removal

To take the assy out of the inner frame, lift the two clamps of the frame [2] and slightly pull the assy out. Only now the cable can be disconnected.

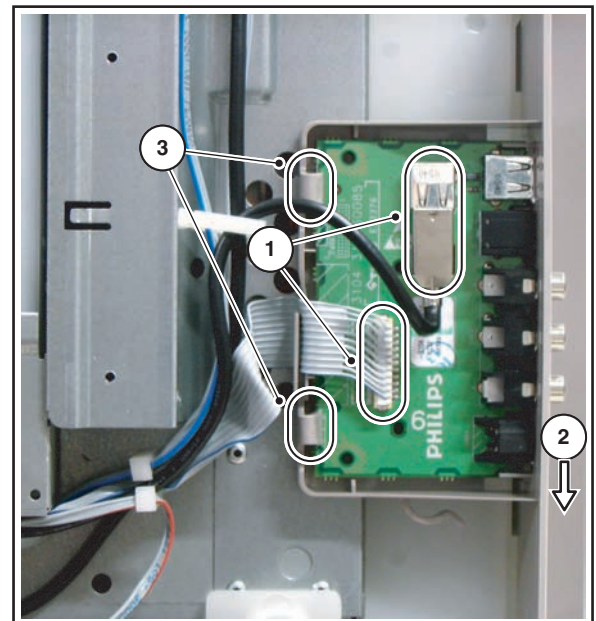
When defective, replace the whole unit.

#### 4.3.7 Side I/O Panel

The Side I/O Panel can be removed together with its plastic frame.

1. Disconnect the USB cable and the flat cable [1] from the panel.
2. Push the plastic frame slightly downwards towards the bottom of the set [2], and take the frame out together with the assy.
3. Push back the clamps [3] on the left side that hold the assy.
4. Take out the assy from the plastic frame, it hinges on the right side.

When defective, replace the whole unit.



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Figure 4-10 Side I/O panel removal

#### 4.3.8 Audio Panel

1. Disconnect all cables from the Audio Panel.
2. Remove the two T10 mounting screws [1] from the Audio Panel. See Figure "Audio Panel removal".
3. Take out the Audio Panel (it hinges at the right side).

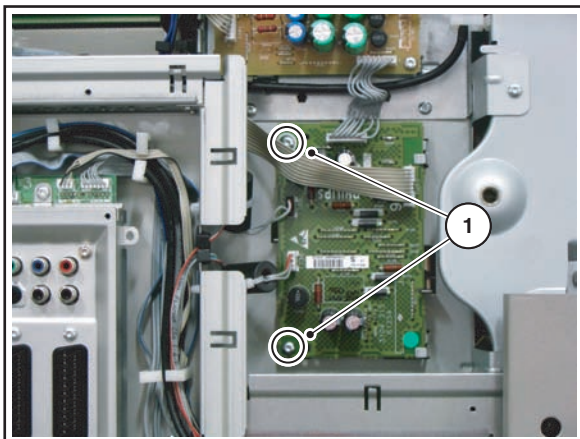
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Figure 4-11 Audio Panel removal

#### 4.3.9 Small Signal Board (SSB) and Main I/O Panel

**Caution:** it is absolutely mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the SSB.

##### Removal from the set

1. Remove the two T10 tapping screws [1] that hold the SSB. This will disconnect the earth cable to the PDP. See Figure “SSB top shielding”.
2. Disconnect the mains power supply cable on the PDP supply panel [2].
3. Disconnect all cables [3] from the SSB. This includes the USB plug and the fragile LVDS cable [4]. For the latter, a plastic cover has to be removed first.
4. Lift the SSB, together with the mains filter and Main I/O Panel from the set.

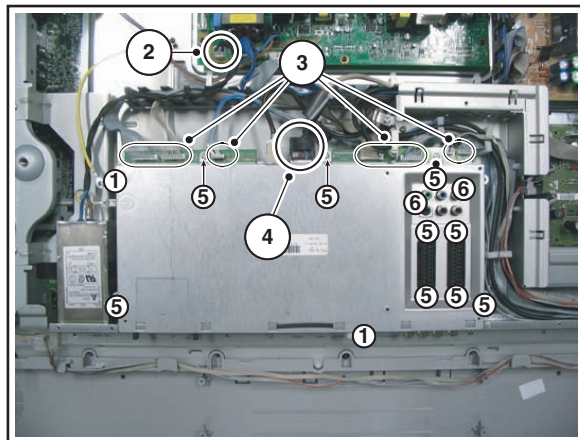
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Figure 4-12 SSB top shielding

##### Removing the shielding

1. Unplug the mains filter earth cable from the top shielding.
2. Remove the T10 tapping screws [5]. See Figure “SSB top shielding”.
3. Remove the T10 parker screws [6].
4. On the bottom shield, remove the T10 tapping screws [1]. See Figure “SSB bottom shielding”.
5. Remove two T10 tapping screws [2] and three T10 parker screws [3].
6. After the rear shielding is removed, the top shielding can be removed.

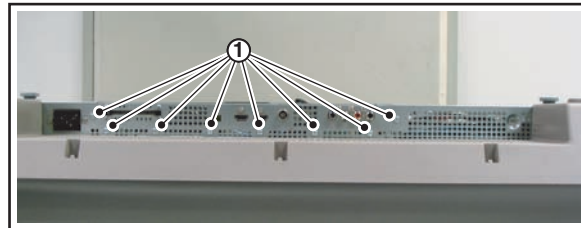
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Figure 4-13 SSB bottom shielding

##### Removing the SSB and Main I/O Panel

See Figure “SSB and main I/O panel”.

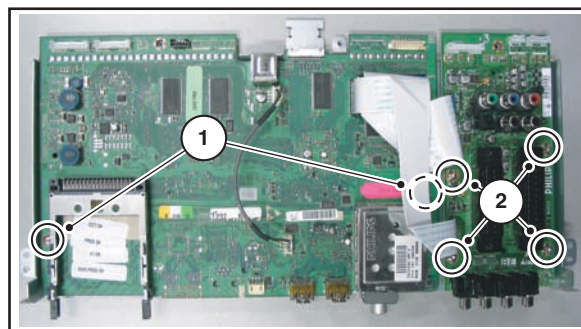
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Figure 4-14 SSB and Main I/O Panel

1. The SSB is mounted with two tapping T10 screws [1]. After having unplugged the cables to the main I/O panel, they are accessible.
2. The Main I/O Panel is mounted with four tapping T10 screws [2].

#### 4.3.10 Platform Supply Panel

See Figure “Platform Supply Panel” for details.

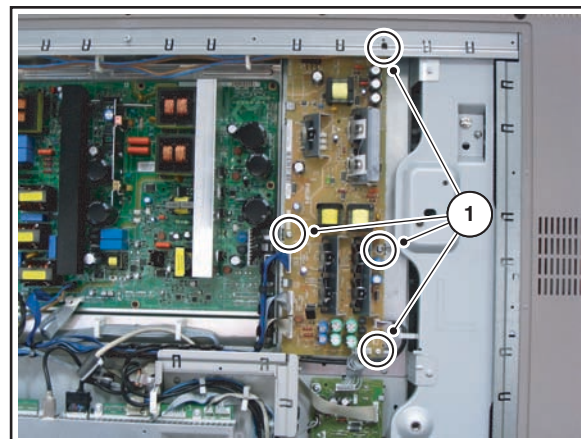
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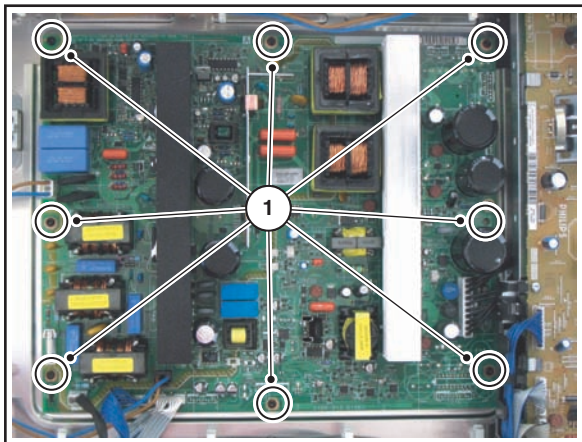
Figure 4-15 Platform Supply Panel

1. Remove the T10 tapping screws [1] (the upper one is hidden but can be accessed via a hole in the metal frame).
2. Unplug the cables except for the upper ones.
3. Take the panel out (it hinges on the left side) and unplug the remaining upper cables.



#### 4.3.11 PDP Supply Panel

See Figure “PDP supply Panel Removal” for details.



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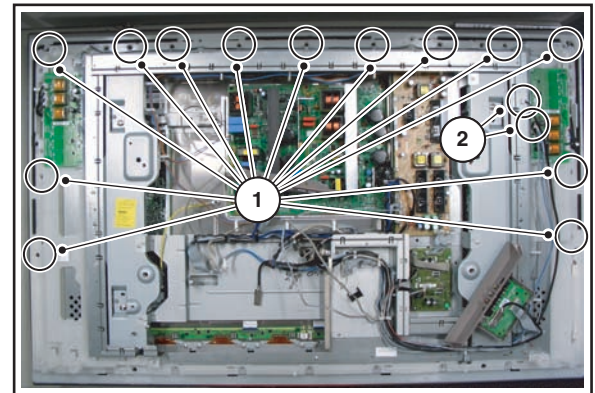
**Figure 4-16 PDP Supply Panel removal**

1. Unplug all cables except the ones on the right side.
2. Remove the T10 tapping screws [1].
3. Carefully pull the panel to the left, unplug the remaining cables and take the panel out.

#### 4.3.12 AmbiLight Diffusor Frame

Before the AmbiLight lamp units can be removed, the AmbiLight diffusor frame must be lifted. Before this, the

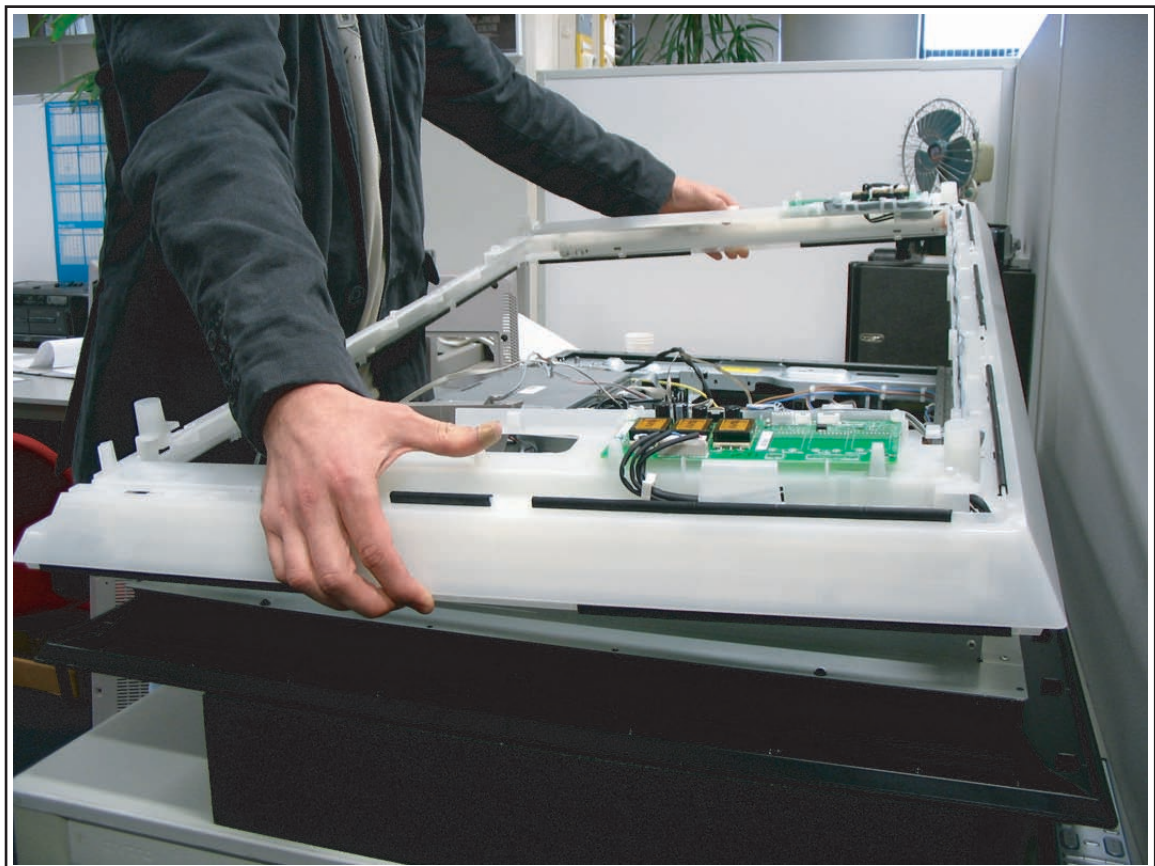
speaker frame must be removed, as described earlier in this chapter. See figure “AmbiLight diffusor frame removal” for details.



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**Figure 4-17 AmbiLight Diffusor Frame removal**

1. Remove the remaining tapping T10 screws [1].
2. From the right AmbiLight Inverter Panel, unplug **two** cables [2] that lead to the SSB.
3. Remove the side I/O panel and Control Panel as previously described without unplugging the cables. Unclamp the cables in the set and place the units in the centre of the set.
4. Carefully lift the plastic frame from the set. See Figure “AmbiLight diffusor frame lift”.



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**Figure 4-18 AmbiLight diffusor frame lift**

Now the AmbiLight lamp units can be removed from the frame. Each of them is fixed with four T10 parker screws: two on the inside and two on the outside of the frame.

#### 4.3.13 LED Panel

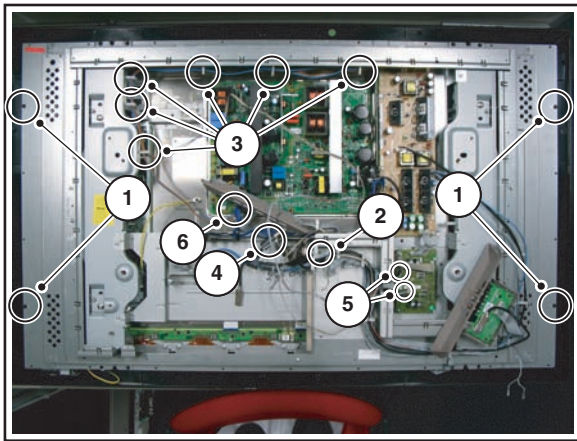
1. After the AmbiLight diffusor frame has been removed, the LED Panel is accessible.
2. Remove the T10 mounting screws that hold the panel.
3. Take out the panel.

When defective, replace the whole unit. Reconnect the earth-cable during re-assembly.

#### 4.3.14 Plasma Display Panel / Glass Plate

Before removing the PDP, related panels and the glass plate, the primary and secondary chassis frames have to be removed.

##### *Primary Chassis Frame Removal*

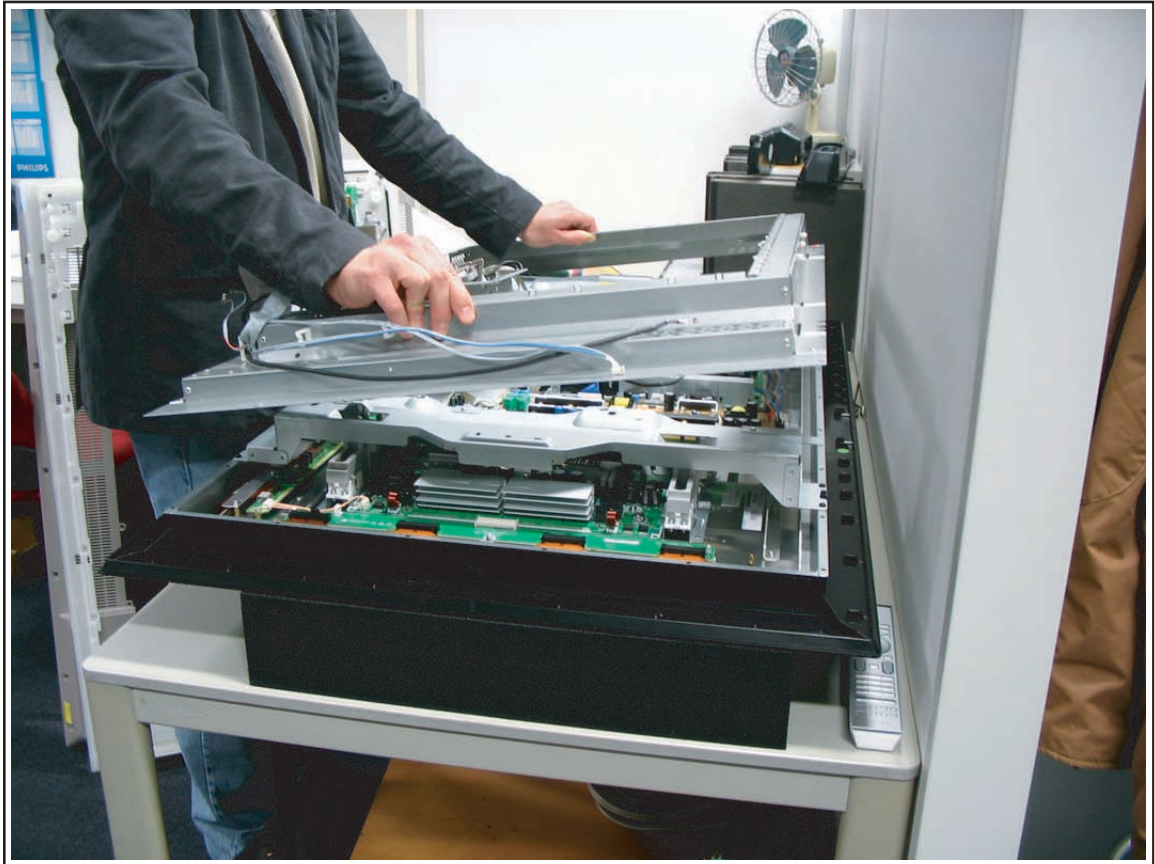


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**Figure 4-19 Primary chassis frame removal**

1. Take out the SSB and main I/O panel as previously described.
2. Remove the T10 parker screws [1].
3. Remove one T10 tapping screw [2] that connects the top frame with the bottom frame.
4. Remove two supply cables [3] that connect the PDP supply panel with the platform supply panel from their clamps.
5. Remove the cable tie [4] of the ferrite core. During re-assembly, replace it by a new one.
6. Disconnect two cables [5] from the Audio Panel.
7. Disconnect one cable [6] from the Platform Supply Panel.
8. Remove the LED Panel as previously described without disconnecting the cable. Release the cable from its clamps and place the panel in the middle of the set.
9. Now the primary chassis frame can be lifted, together with the Side I/O-, the LED- and the Control Panel. See Figure "Primary chassis frame lift".

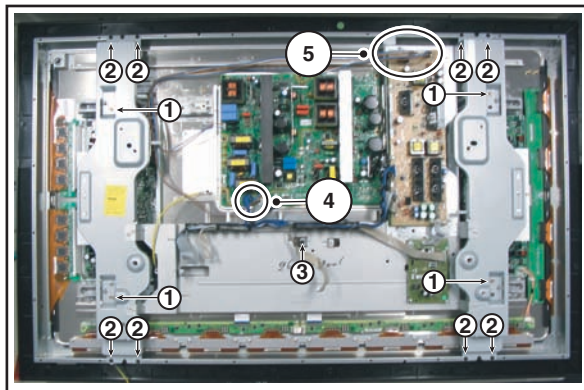




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**Figure 4-20 Primary chassis frame lift**

#### **Secondary Chassis Frame Removal**

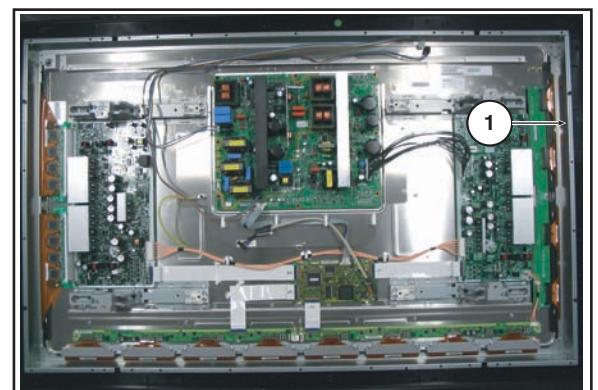


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**Figure 4-21 Secondary chassis frame removal**

1. Remove the T25 tapping screws [1].
2. Remove the T10 parker screws [2].
3. Remove one T20 tapping screw [3].
4. Disconnect one connector [4] at the bottom of the Display Supply Panel.
5. Disconnect two cables [5] at the top of the Platform Supply Panel.

#### **Plasma Display Panel Removal**



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**Figure 4-22 Plasma Display Panel removal**

Now the PDP and the glass plate can be removed. Before sending the PDP for repair, remove the Display Supply Panel (only for FHP panels) and the LVDS cable. The glass plate can be removed after lifting the surrounding metal frame [1].

#### 4.4 Set Re-assembly

To re-assemble the whole set, execute all processes in reverse order.

**Notes:**

- While re-assembling, make sure that all cables are placed and connected in their original position. See figure "Cable dressing".
- Pay special attention not to damage the EMC foams on the SSB shields. Ensure that EMC foams are mounted correctly.



## 5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

- 5.1 Test Points
- 5.2 Service Modes
- 5.3 Stepwise Start-up
- 5.4 Service Tools
- 5.5 Error Codes
- 5.6 The Blinking LED Procedure
- 5.7 Protections
- 5.8 Fault Finding and Repair Tips
- 5.9 Software Upgrading

### 5.1 Test Points

The chassis is equipped with test points (Fxxx) printed on the circuit board assemblies. As most signals are digital, it will be difficult to measure waveforms with a standard oscilloscope. Several key ICs are capable of generating test patterns, which can be controlled via ComPair. In this way it is possible to determine which part is defective.

Perform measurements under the following conditions:

- Service Default Mode.
- Video: Colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

### 5.2 Service Modes

Service Default mode (SDM) and Service Alignment Mode (SAM) offers several features for the service technician, while the Customer Service Mode (CSM) is used for communication between the call centre and the customer.

This chassis also offers the option of using ComPair, a hardware interface between a computer and the TV chassis. It offers the abilities of structured troubleshooting, error code reading, and software version read-out for all chassis. *Minimum requirements for ComPair:* a Pentium processor, a Windows OS, and a CD-ROM drive (see also paragraph "ComPair").

#### 5.2.1 Service Default Mode (SDM)

##### Purpose

- To create a pre-defined setting, to get the same measurement results as given in this manual.
- To override SW protections detected by stand-by processor and make the TV start up to the step just before protection (a sort of automatic stepwise start up). See paragraph "Stepwise Start Up".
- To override SW protections detected by Viper. Depending on the SW version it is possible that this mechanism does not work correctly. See also paragraph "Error codes".
- To start the blinking LED procedure (not valid in protection mode).

##### Specifications

Table 5-1 SDM default settings

| Region                 | Freq. (MHz)                                                       | Default system |
|------------------------|-------------------------------------------------------------------|----------------|
| Europe, AP (PAL/Multi) | 475.25                                                            | PAL B/G        |
| Europe, AP DVBT        | 546.000<br>PID Video: 0B 06<br>PID PCR: 0B 06<br>PID Audio: 0B 07 | DVBT           |

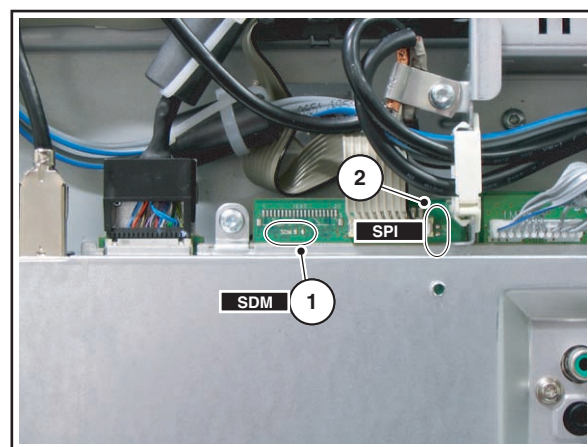
- All picture settings at 50% (brightness, colour, contrast).

- All sound settings at 50%, except volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Picture mute (blue mute or black mute).
  - Automatic volume levelling (AVL).
  - Auto switch "off" (when no video signal was received for 10 minutes).
  - Skip/blank of non-favourite pre-sets.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

##### How to Activate SDM

For DVBT TV's there are two kinds of SDM: an analogue SDM and a digital SDM. Tuning will happen according table "SDM Default Settings".

- Analogue SDM: use the standard RC-transmitter and key in the code "062596", directly followed by the "MENU" button.  
**Note:** It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the "MENU" button again.
- Digital SDM: use the standard RC-transmitter and key in the code "062593", directly followed by the "MENU" button. Depending on the software version it is possible that the tuning will not work correctly.  
**Note:** It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the "MENU" button again.
- Analogue SDM can also be activated by shorting for a moment the two solder pads [1] on the SSB, with the indication "SDM". They are located outside the shielding. Activation can be performed in all modes, except when the set has a problem with the Stand-by Processor. See figure "Service mode pads".



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Figure 5-1 Service mode pads

After activating this mode, "SDM" will appear in the upper right corner of the screen (if you have picture).

##### How to Navigate

When you press the "MENU" button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).

##### How to Exit SDM

Use one of the following methods:

- Switch the set to STAND-BY via the RC-transmitter.
- Via a standard customer RC-transmitter: key in "00"-sequence.

## 5.2.2 Service Alignment Mode (SAM)

### Purpose

- To perform (software) alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display (or clear) the error code buffer.

### How to Activate SAM

Via a standard RC transmitter: key in the code "062596" directly followed by the "INFO" button. After activating SAM with this method a service warning will appear on the screen, you can continue by pressing the red button on the RC.

### Contents of SAM:

- **Hardware Info.**
  - **A. SW Version.** Displays the software version of the VIPER software (main software) (**example:** BX31E-1.2.3.4\_12345 = AAAAB\_X.Y.W.Z\_NNNNN).
    - **AAAA=** the software name.
    - **B=** the region: A= AP, E= EU, L= LatAm, U = US. For AP sets it is possible that the Europe software version is used.
    - **X.Y.W.Z=** the software version, where X is the main version number (different numbers are not compatible with one another) and Y.W.Z is the sub version number (a higher number is always compatible with a lower number).
    - **NNNNN=** last five digits of 12nc code of the software.
  - **B. SBY PROC Version.** Displays the software version of the stand-by processor.
  - **C. Production Code.** Displays the production code of the TV, this is the serial number as printed on the back of the TV set. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee in a possibility to do this.
- **Operation Hours.** Displays the accumulated total of operation hours (not the stand-by hours). Every time the TV is switched "on/off", 0.5 hours is added to this number.
- **Errors.** (Followed by maximal 10 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **Defective Module.** Here the module that generates the error is displayed. If there are multiple errors in the buffer, which are not all generated by a single module, there is probably another defect. It will then display the message "UNKNOWN" here. Not all errors will display a defective module name.
- **Reset Error Buffer.** When you press "cursor right" and then the "OK" button, the error buffer is reset.
- **Alignments.** This will activate the "ALIGNMENTS" sub-menu.
- **Dealer Options.** Extra features for the dealers.
- **Options.** Extra features for Service. For more info regarding option codes, see chapter 8.  
Note that if you change the option code numbers, you have to confirm your changes with the "OK" button before you store the options. Otherwise you will lose your changes.
- **Initialise NVM.** When an NVM was corrupted (or replaced) in the former EMG based chassis, the microprocessor replaces the content with default data (to assure that the set can operate). However, all preferences and alignment values are gone now, and option numbers are not correct. Therefore, this was a very drastic way. In this chassis, the procedure is implemented in another way: The moment the processor recognizes a corrupted NVM, the "initialize NVM" line will be highlighted. Now, you can do two things (dependent of the service instructions at that moment):
  - Save the content of the NVM via ComPair for development analysis, **before** initializing. This will give

the Service department an extra possibility for diagnosis (e.g. when Development asks for this).

- Initialize the NVM (same as in the past, however now it happens conscious).

**Note:** When you have a corrupted NVM, or you have replaced the NVM, there is a high possibility that you will not have picture any more because your display option is not correct. So, before you can initialize your NVM via the SAM, you need to have picture and therefore you need the correct display option. To adapt this option, you can use ComPair (the correct HEX values for the options can be found in the table below) or a method via a standard RC (described below).

### Changing the display option via a standard RC:

Key in the code "062598" directly followed by the "MENU" button and "XXX" (where XXX is the 3 digit decimal display option code as mentioned in the first column of the next table). Make sure to key in all three digits, also the leading zero's. If the above action is successful, the front LED will go out as an indication that the RC sequence was correct.

After the display option is changed in the NVM, the TV will go to the Stand-by mode.

If the NVM was corrupted or empty before this action, it will be initialised first (loaded with default values). This initialising can take up to 20 seconds.

Table 5-2 Display option code overview

| Display Option | HEX | Display Type                     | Size | Vertical Resolution |
|----------------|-----|----------------------------------|------|---------------------|
| 000            | 00  | PDP SDI HD V3                    | 42"  | 768p                |
| 001            | 01  | PDP SDI HD V3                    | 50"  | 768p                |
| 002            | 02  | PDP FHP                          | 42"  | 1024i               |
| 003            | 03  | LCD LPL                          | 30"  | 768p                |
| 004            | 04  | LCD LPL                          | 37"  | 768p                |
| 005            | 05  | LCD LPL                          | 42"  | 768p                |
| 006            | 06  | LCD SHARP                        | 32"  | 768p                |
| 007            | 07  | PDP SDI SD V3                    | 42"  | 480p                |
| 008            | 08  | PDP FHP                          | 37"  | 1024i               |
| 009            | 09  | LCOS XION                        | -    | 720p                |
| 010            | 0A  | LCD AUO                          | 30"  | 768p                |
| 011            | 0B  | LCD LPL                          | 32"  | 768p                |
| 012            | 0C  | LCD AUO                          | 32"  | 768p                |
| 013            | 0D  | LCD SHARP                        | 37"  | 768p                |
| 014            | 0E  | LCD LPL full HD                  | 42"  | 1080p               |
| 015            | 0F  | PDP SDI SD                       | 37"  | 480p                |
| 016            | 10  | PDP FHP                          | 37"  | 1080i               |
| 017            | 11  | PDP FHP                          | 42"  | 1080i               |
| 018            | 12  | PDP FHP                          | 55"  | 768p                |
| 019            | 13  | LCOS VENUS                       | -    | 720p                |
| 020            | 14  | LCOS VENUS full HD               | -    | 1080p               |
| 021            | 15  | LCD LPL                          | 26"  | 768p                |
| 022            | 16  | LCD LPL clear lcd                | 32"  | 768p                |
| 023            | 17  | PDP LG SD                        | 42"  | 480p                |
| 024            | 18  | PDP SDI V4                       | 42"  | 480p                |
| 025            | 19  | PDP SDI V4                       | 42"  | 768p                |
| 026            | 1A  | PDP FHP A2                       | 42"  | 1024i               |
| 027            | 1B  | PDP SDI HD V4                    | 50"  | 768p                |
| 028            | 1C  | LCD Sharp full HD                | 37"  | 1080p               |
| 029            | 1D  | LCD AUO                          | 32"  | 768p                |
| 030            | 1E  | for development sample only      |      |                     |
| 031            | 1F  | LCD Sharp full HD clear lcd V3.0 | 37"  | 1080p               |
| 032            | 20  | LCD LPL                          | 20"  | 768p                |
| 033            | 21  | LCD QDI                          | 23"  | 768p                |
| 034            | 22  | ECO PTV                          | 51"  | 1080i               |
| 035            | 23  | ECO PTV                          | 55"  | 1080i               |
| 036            | 24  | ECO PTV                          | 61"  | 1080i               |
| 037            | 25  | PDP FHP A3                       | 42"  | 1024i               |
| 038            | 26  | DLP                              | 50"  | 720p                |
| 039            | 27  | DLP                              | 60"  | 720p                |
| 040            | 28  | LCD Sharp V2.3                   | 32"  | 768p                |
| 041            | 29  | LCD LPL clear lcd                | 42"  | 768p                |
| 042            | 2A  | PDP SDI V4                       | 63"  | 768p                |
| 043            | 2B  | LCD Sharp V3.0 clear lcd         | 37"  | 768p                |
| 044            | 2C  | LCD Sharp V2.3                   | 37"  | 768p                |
| 045            | 2D  | LCD LPL                          | 26"  | 768p                |
| 046            | 2E  | LCD LPL                          | 32"  | 768p                |

- **Store.** All options and alignments are stored when pressing "cursor right" and then the "OK"-button
- **SW Maintenance.**
  - **SW Events.** Not useful for Service purposes. In case of specific software problems, the development department can ask for this info.
  - **HW Events.** Not useful for Service purposes. In case of specific software problems, the development department can ask for this info.
- **Operation hours PDP.** Here you are able to reset the operations hours of the plasma display. This has to be done in case of replacement of the display.
- **Upload to USB.** Here you are able to upload several settings from the TV to a USB stick which is connected to the Side IO. The four items are "Channel list", "Personal settings", "Option codes" and "Display-related alignments". First you have to create a directory "repair" in the root of the USB stick. To upload the settings you have to select each item separately, press "cursor right", confirm with "OK" and wait until "Done" appears. Now the settings are stored onto your USB stick and can be used to download onto another TV or other SSB. Uploading is of course only possible if the software is running and if you have picture. This method is created to be able to save the customer's TV settings and to store them into another SSB.
- **Download from USB.** Here you are able to download several settings from the USB stick to the TV. Same way of working as with uploading. To make sure that the download of the channel list from USB to the TV is executed properly, it is necessary to restart the TV and tune to a valid preset if necessary.

#### How to Navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
  - (De) activate the selected menu item.
  - (De) activate the selected sub menu.
- With the "OK" key, it is possible to activate the selected action.

#### How to Exit SAM

Use one of the following methods:

- Press the "MENU" button on the RC-transmitter.
- Switch the set to STAND-BY via the RC-transmitter.

### 5.2.3 Customer Service Mode (CSM)

#### Purpose

When a customer is having problems with his TV-set, he can call his dealer or the Customer Helpdesk. The service technician can then ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer. The CSM is a read only mode; therefore, modifications in this mode are not possible.

When in this chassis, CSM is activated, a colour bar test pattern will be visible for 5 seconds. This test pattern is generated by the Pacific3. So if you see this test pattern you can determine that the back end video chain (Pacific3, LVDS and display) is working.

Also new in this chassis: when you activate CSM and there is a USB stick connected to the TV, the software will dump the complete CSM content to the USB stick. The file (Csm.txt) will be saved in the root of your USB stick. This info can be handy if you don't have picture.

#### How to Activate CSM

Key in the code "123654" via the standard RC transmitter.

**Note:** Activation of the CSM is only possible if there is no (user) menu on the screen!

#### How to Navigate

By means of the "CURSOR-DOWN/UP" knob on the RC-transmitter, you can navigate through the menus.

#### Contents of CSM

- **Set Type.** This information is very helpful for a helpdesk/ workshop as reference for further diagnosis. In this way, it is not necessary for the customer to look at the rear of the TV-set. Note that if an NVM is replaced or is initialized after corruption, this set type has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Production Code.** Displays the production code (the serial number) of the TV. Note that if an NVM is replaced or is initialized after corruption, this production code has to be re-written to NVM. ComPair will foresee a possibility to do this.
- **Code 1.** Gives the latest five errors of the error buffer. As soon as the built-in diagnose software has detected an error the buffer is adapted. The last occurred error is displayed on the leftmost position. Each error code is displayed as a 2-digit number. When less than 10 errors occur, the rest of the buffer is empty (00). See also paragraph Error Codes for a description.
- **Code 2.** Gives the first five errors of the error buffer. See also paragraph Error Codes for a description.
- **Options 1.** Gives the option codes of option group 1 as set in SAM (Service Alignment Mode).
- **Options 2.** Gives the option codes of option group 2 as set in SAM (Service Alignment Mode).
- **12NC SSB.** Gives the 12NC of the SSB as stored in NVM. Note that if an NVM is replaced or is initialized after corruption, this 12NC has to be re-written to NVM. ComPair will foresee a possibility to do this. The 12NC of the SSB itself can be found back on a sticker of the SSB (not the sticker on the shielding but the one on the PWB itself).
- **Digital Natural Motion.** Gives the last status of the Digital Natural Motion setting, as set by the customer. Possible values are "Off", "Minimum" and "Maximum". See DFU on how to change this item.
- **Pixel Plus.** Gives the last status of the Pixel Plus setting, as set by the customer. Possible values are "On" and "Off". See DFU on how to change this item.
- **DNR.** Gives the last status of the DNR setting, as set by the customer. Possible values are "Off", "Minimum", "Medium" and "Maximum". See DFU on how to change this item.
- **Noise Figure.** Gives the noise ratio for the selected transmitter. This value can vary from 0 (good signal) to 127 (average signal) and to 255 (bad signal). For some software versions, the noise figure will only be valid when "Active Control" is set to "medium" or "maximum" before activating CSM. Noise figure is not applicable for DVBT channels.
- **Headphone Volume.** Gives the last status of the headphone volume, as set by the customer. The value can vary from 0 (volume is minimum) to 100 (volume is maximum). See DFU on how to change this item.
- **Dolby.** Indicates whether the received transmitter transmits Dolby sound ("ON") or not ("OFF"). Attention: The presence of Dolby can only be tested by the software on the Dolby Signalling bit. If a Dolby transmission is received without a Dolby Signalling bit, this indicator will show "OFF" even though a Dolby transmission is received.
- **Surround Mode.** Indicates the by the customer selected sound mode (or automatically chosen mode). Possible values are "STEREO" and "VIRTUAL DOLBY SURROUND". It can also have been selected automatically by signalling bits (internal software). See DFU on how to change this item.

- **Audio System.** Gives information about the audible audio system. Possible values are "Stereo", "Mono", "Mono selected", "Dual I", "Dual II", "Nicom Stereo", "Nicom mono", "Nicom dual I", "Nicom dual II", "Nicom available", "Analog In: No Dig. Audio", "Dolby Digital 1+1", "Dolby Digital 1/0", "Dolby Digital 2/0", "Dolby Digital 2/1", "Dolby Digital 2/2", "Dolby Digital 3/0", "Dolby Digital 3/1", "Dolby Digital 3/2", "Dolby Digital Dual I", "Dolby Digital Dual II", "MPEG 1+1", "MPEG 1/0", "MPEG 2/0" and "Not supported signal". This is the same info as you will see when pressing the "INFO" button in normal user mode (item "Sound"). When the audio is muted, there will be no info displayed.
- **AVL.** Indicates the last status of AVL (Automatic Volume Level) as set by the customer: See DFU on how to change this item.
- **Delta Volume.** Indicates the last status of the delta volume for the selected preset as set by the customer: from "-12" to "+12". See DFU on how to change this item..
- **Preset Lock.** Indicates if the selected preset has a child lock: "LOCKED" or "UNLOCKED". See DFU on how to change this item..
- **Child lock.** Indicates if "Child lock" is set to "UNLOCK", "LOCKED" or "CUSTOM LOCK". See DFU on how to change this item..
- **Lock after.** Indicates at what time the channel lock is set: "OFF" or e.g. "18:45" (lock time). See DFU on how to change this item.
- **Parental rating lock.** Gives the last status of the parental rating lock as set by the customer. See DFU on how to change this item.
- **Parental rating status.** Gives the value of the parental rating status as sent by the current preset.
- **TV ratings lock.** Only applicable for US.
- **Movie ratings lock.** Only applicable for US.
- **V-Chip TV status.** Only applicable for US.
- **V-Chip movie status.** Only applicable for US.
- **Region rating status (RRT).** Only applicable for US.
- **On timer.** Indicates if the "On timer" is set "ON" or "OFF" and when it is set to "ON", also start time, start day and program number is displayed. See DFU on how to change this item.
- **Location.** Gives the last status of the location setting as set via the installation menu. Possible values are "Shop" and "Home". If the location is set to "Shop", several settings are fixed. So for a customer location must be set to "Home". Can be changed via the installation menu (see also DFU).
- **HDMI key validity.** Indicates if the HDMI keys (or HDCP keys) are valid or not. In case these keys are not valid and the customer wants to make use of the HDMI functionality, the SSB has to be replaced.
- **IEEE key validity.** Not applicable.
- **POD key validity.** Not applicable.
- **Tuner Frequency.** Indicates the frequency the selected transmitter is tuned to.
- **TV System.** Gives information about the video system of the selected transmitter. In case a DVBT signal is received this item will also show ATSC.
  - BG: PAL BG signal received
  - DK: PAL DK signal received
  - L/La: SECAM L/La signal received
  - I: PAL I signal received
  - M: NTSC M signal received
  - ATSC: ATSC or DVBT signal received
- **Source.** Indicates which source is used and the video quality of the selected source. (Example: Tuner, Video)  
Source: "TUNER", "EXT1", "EXT2", "EXT3", "EXT4", "YPbPr1", "YPbPr2", "VGA", "DVI-I", "HDMI 1", "HDMI 2", "SIDE" and "DVI". Video signal quality: "VIDEO", "S-VIDEO", "RGB 1FH", "YUV", "VGA", "SVGA", "XGA", "CVBS", "Y/C", "YPBPR 1FH 480p", "YPBPR 1FH 576p", "YPBPR 1FH 1080i", "YPBPR 2FH 480p", "YPBPR 2FH 576p", "YPBPR 2FH 1080i", "RGB 2FH 480p", "RGB 2FH 576p", "RGB 2FH 1080i", "720p" or "Unsupported".

- **Tuned Bit.** Due to the DVBT architectural setup this item does not give useful information any more.
- **Digital signal modulation.** No useful information for Service purposes.
- **12NC one zip SW.** Displays the 12NC number of the one-zip file as it is used for programming software in production. In this one-zip file all below software version can be found.
- **Initial main SW.** Displays the main software version which was initially loaded by the factory.
- **Current main SW.** Displays the built-in main software version. In case of field problems related to software, software can be upgraded. As this software is consumer upgradeable, it will also be published on the Internet. Example: BX31E\_1.2.3.4.
- **Flash utils SW.** Displays the software version of the software which contains all necessary components of the download application. To program this software, EJTAG tooling is needed. Example: FLASH\_1.1.0.0.
- **Standby SW.** Displays the built-in stand-by processor software version. Upgrading this software will be possible via ComPair or via USB.(see chapter Software upgrade). Example: STDBY\_3.0.1.2.
- **MOP SW.** Not applicable for this chassis.
- **Pacific 3 Flash SW.** Displays the Pacific 3 software version.
- **NVM version.** Displays the NVM version as programmed by factory.

#### How to Exit CSM

Press "MENU" on the RC-transmitter.

## 5.3 Stepwise Start-up

The stepwise start-up method, as known from FTL/FTP sets (EMG based sets) is not valid any more. There are two possible situation: one for protections detected by standby software and one for protections detected by main software.

When the TV is in a protection state due to an error detected by standby software (and thus blinking an error) **and** SDM is activated via shortcutting the pins on the SSB, the TV starts up until it reaches the situation just before protection. So, this is a kind of automatic stepwise start-up. In combination with the start-up diagrams below, you can see which supplies are present at a certain moment. Important to know here is, that if e.g. the 3V3 detection fails (and thus error 11 is blinking) **and** the TV is restarted via SDM, the Stand-by Processor will enable the 3V3, but will not go to protection now. The TV will stay in this situation until it is reset (Mains/AC Power supply interrupted).

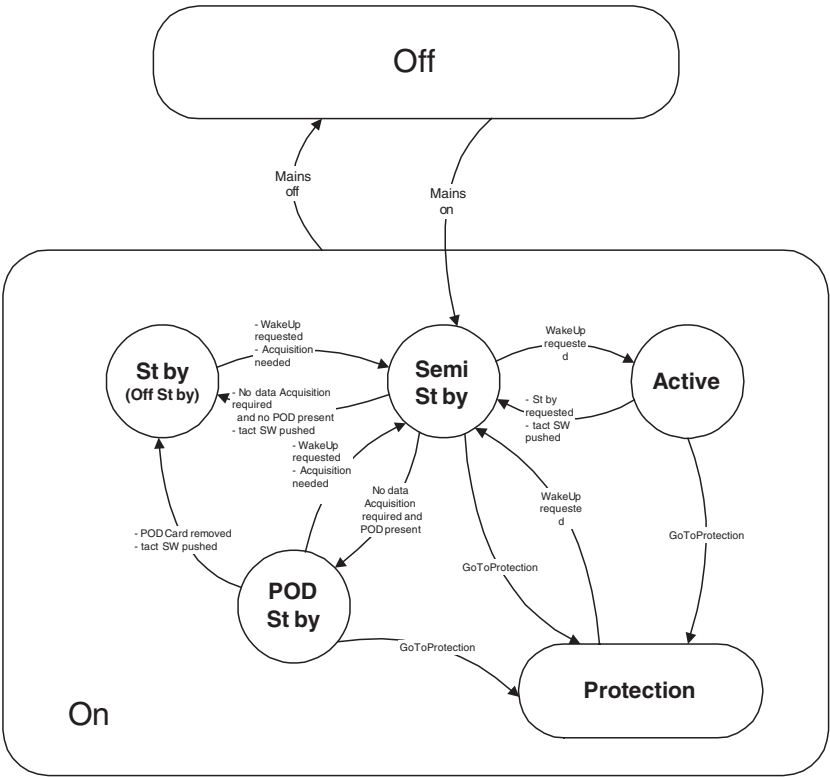
When the TV is in protection state due to an error detected by main software (Viper protection) **and** SDM is activated via shortcutting the pins on the SSB, the TV starts up and ignores the error. Due to architectural reasons it is possible that the TV will end up in an undefined state (e.g. when the fast I<sup>2</sup>C bus is blocked). In this case diagnose has to be done via ComPair.

The abbreviations "SP" and "MP" in the figures stand for:

- SP: protection or error detected by the **Stand-by Processor**.
- MP: protection or error detected by the **VIPER Main Processor**.

In the next transition diagrams for "POD" should be read "CI".





For detailed information concerning the triggers that cause the state transitions, please consult the Jaguar FRS or the ATSC SAD.

The protection state is hardware wise identical to the standby state but has other, limited wake up reasons.

G\_15960\_117.eps  
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Figure 5-2 Transition diagram

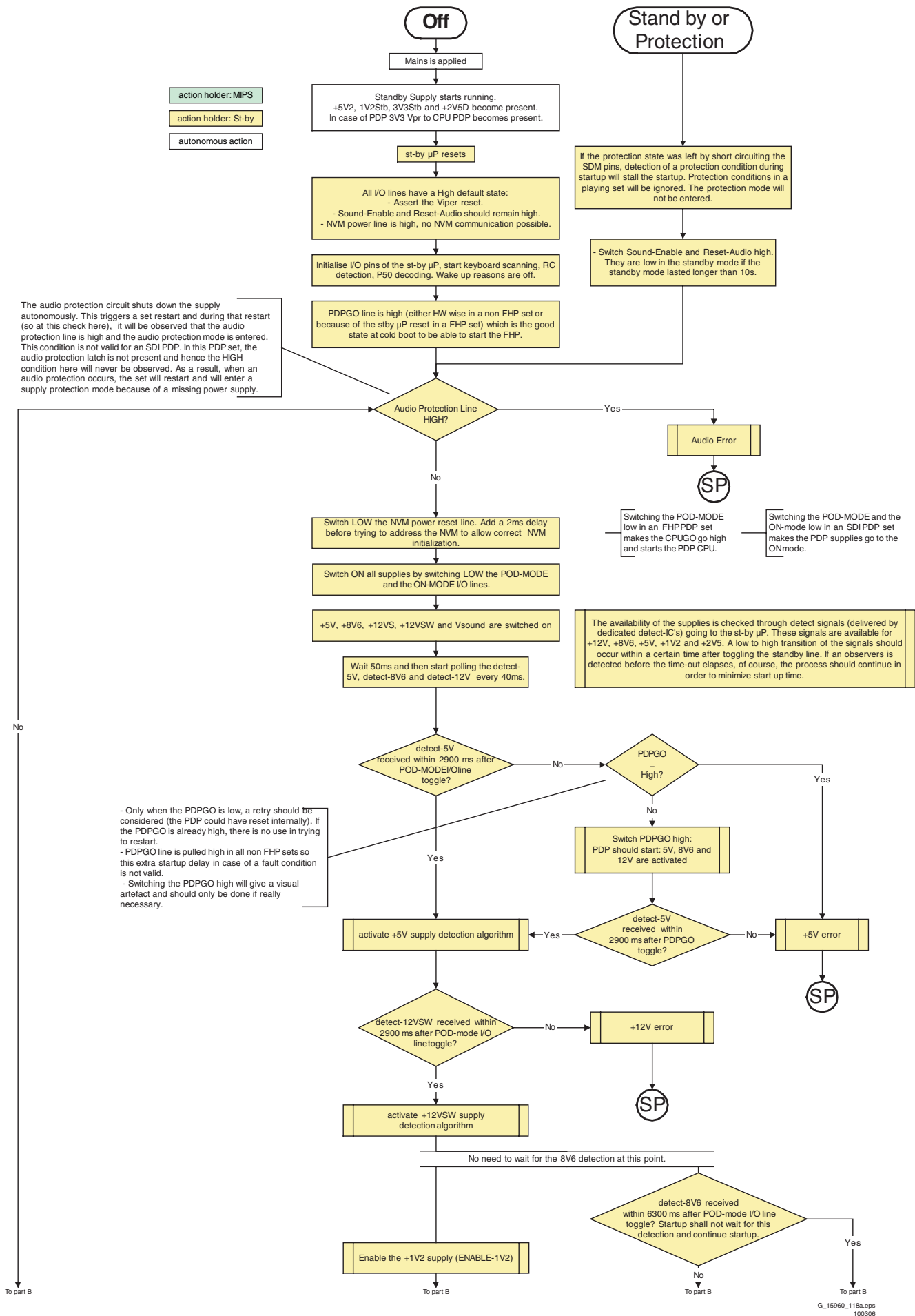


Figure 5-3 “Off” to “Semi Stand-by” flowchart (part 1)

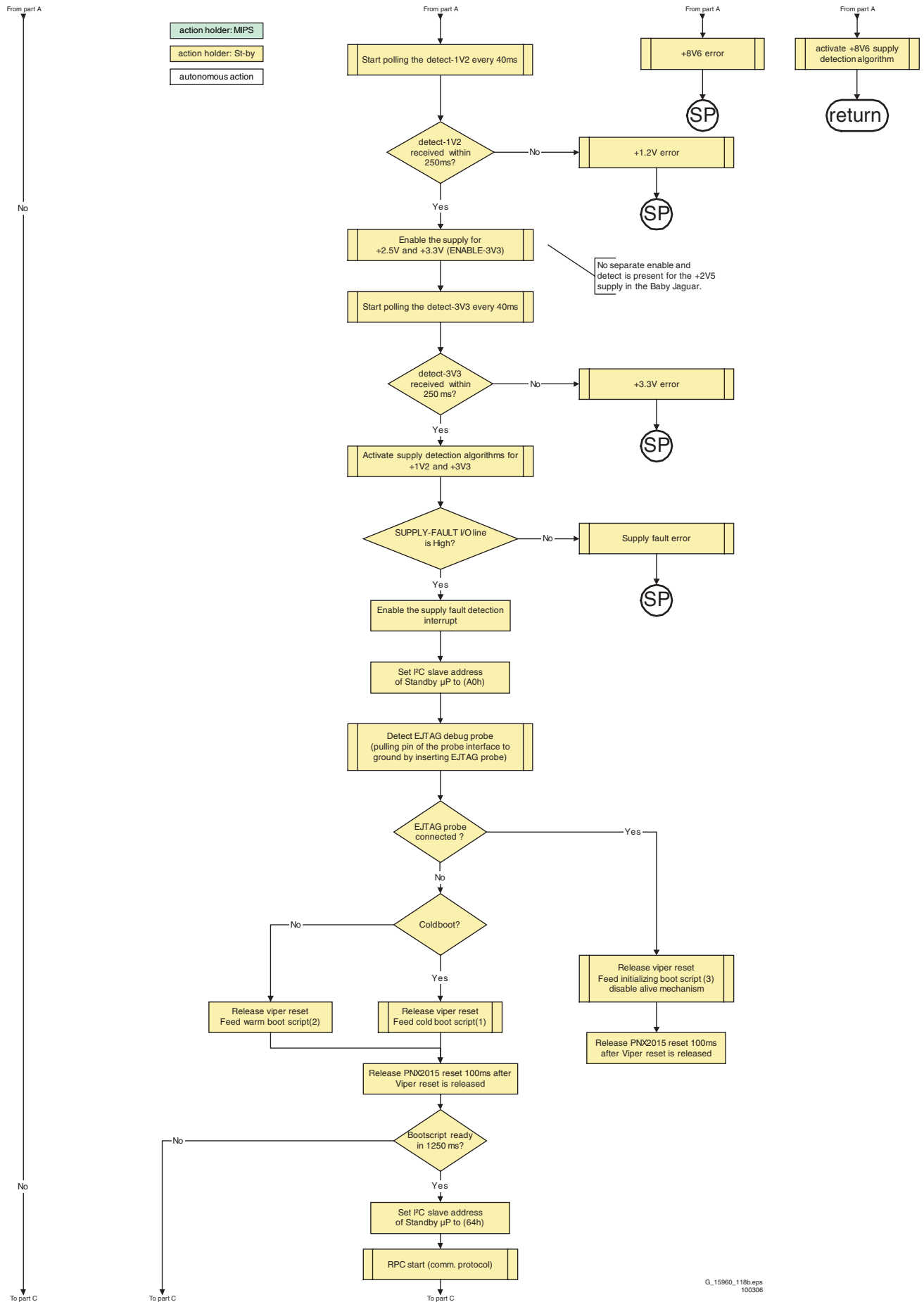


Figure 5-4 “Off” to “Semi Stand-by” flowchart (part 2)

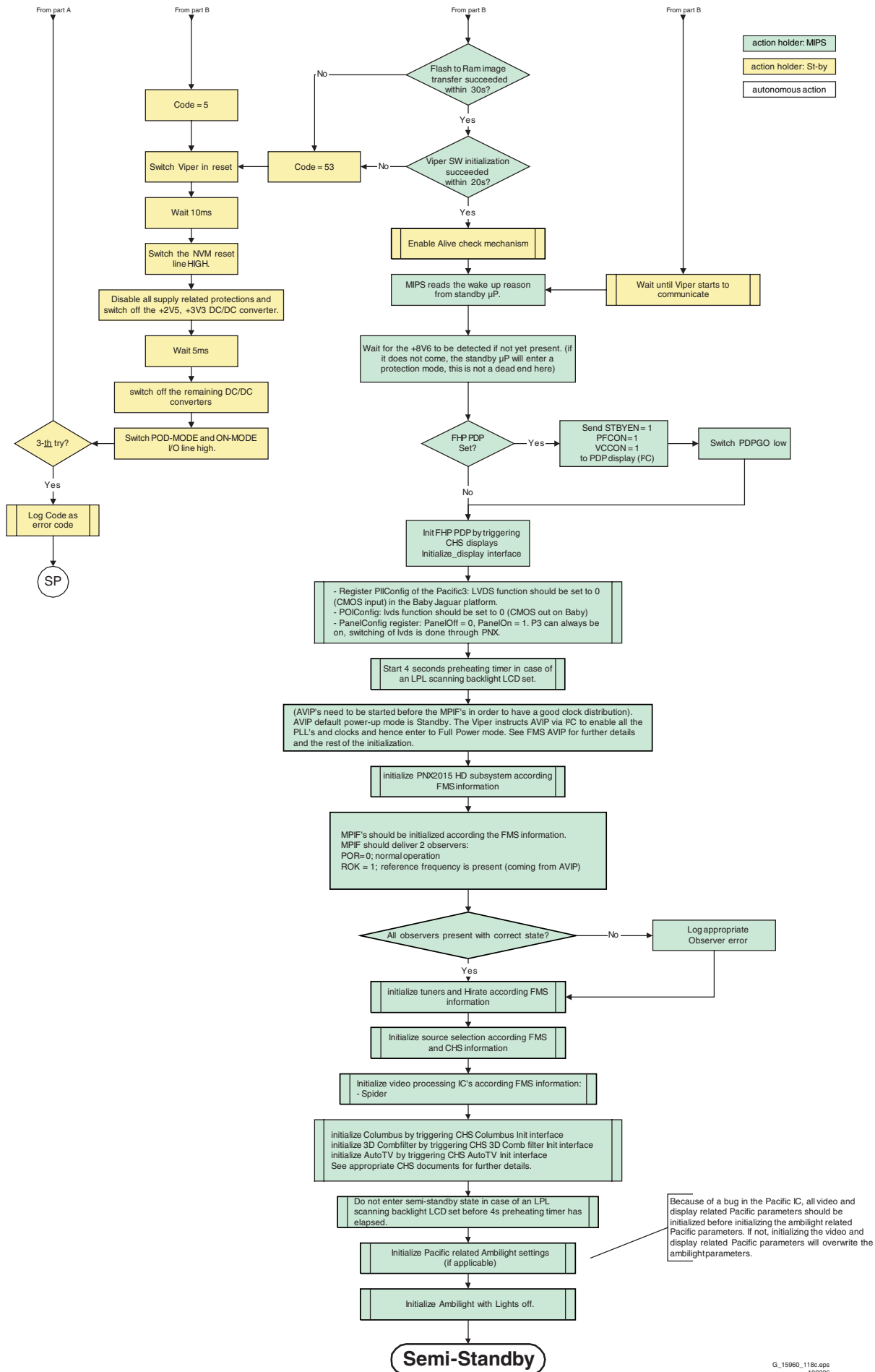


Figure 5-5 "Off" to "Semi Stand-by" flowchart (part 3)



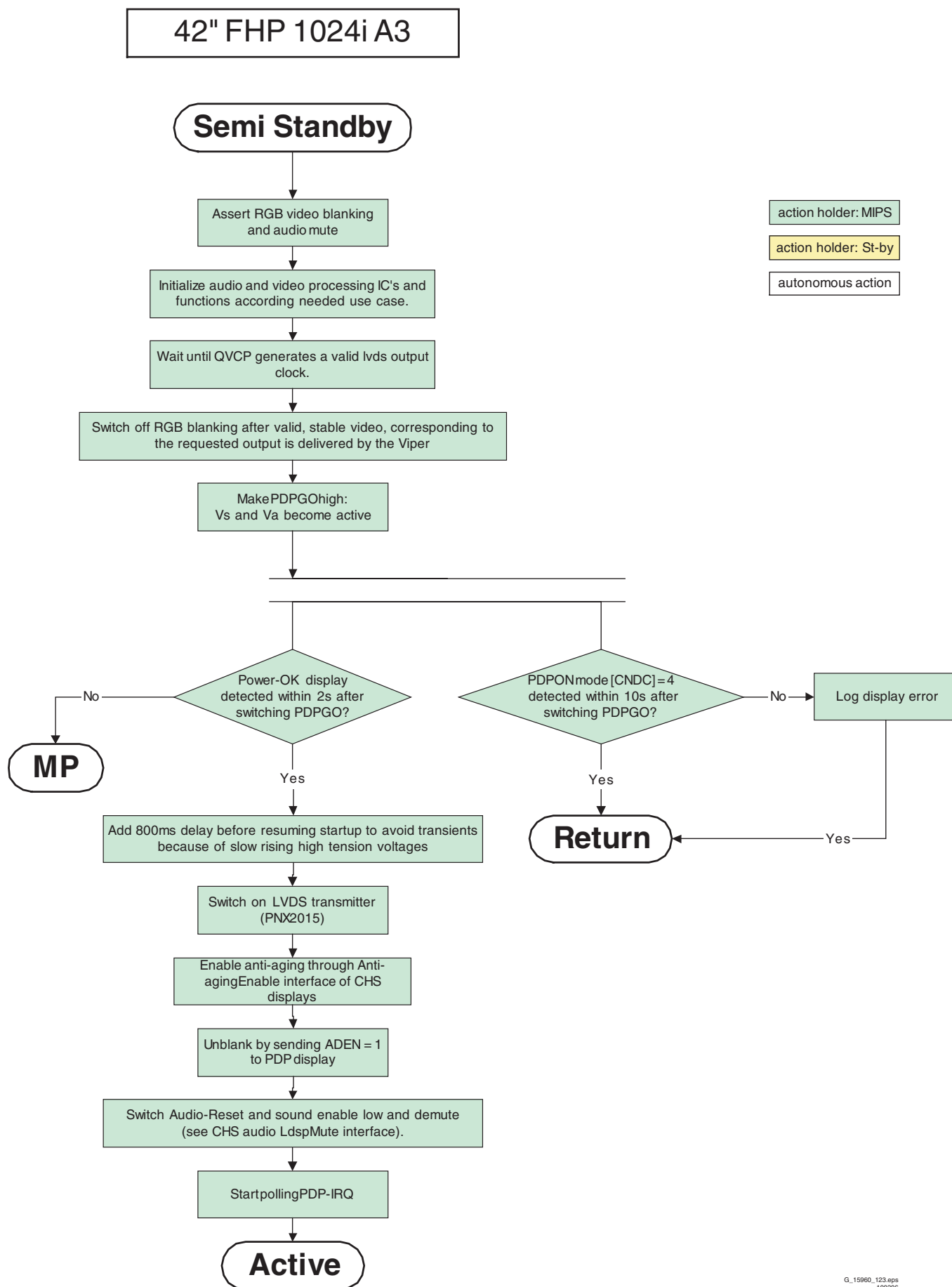


Figure 5-6 “Semi Stand-by” to “Active” flowchart 42” FHP 1024i A3

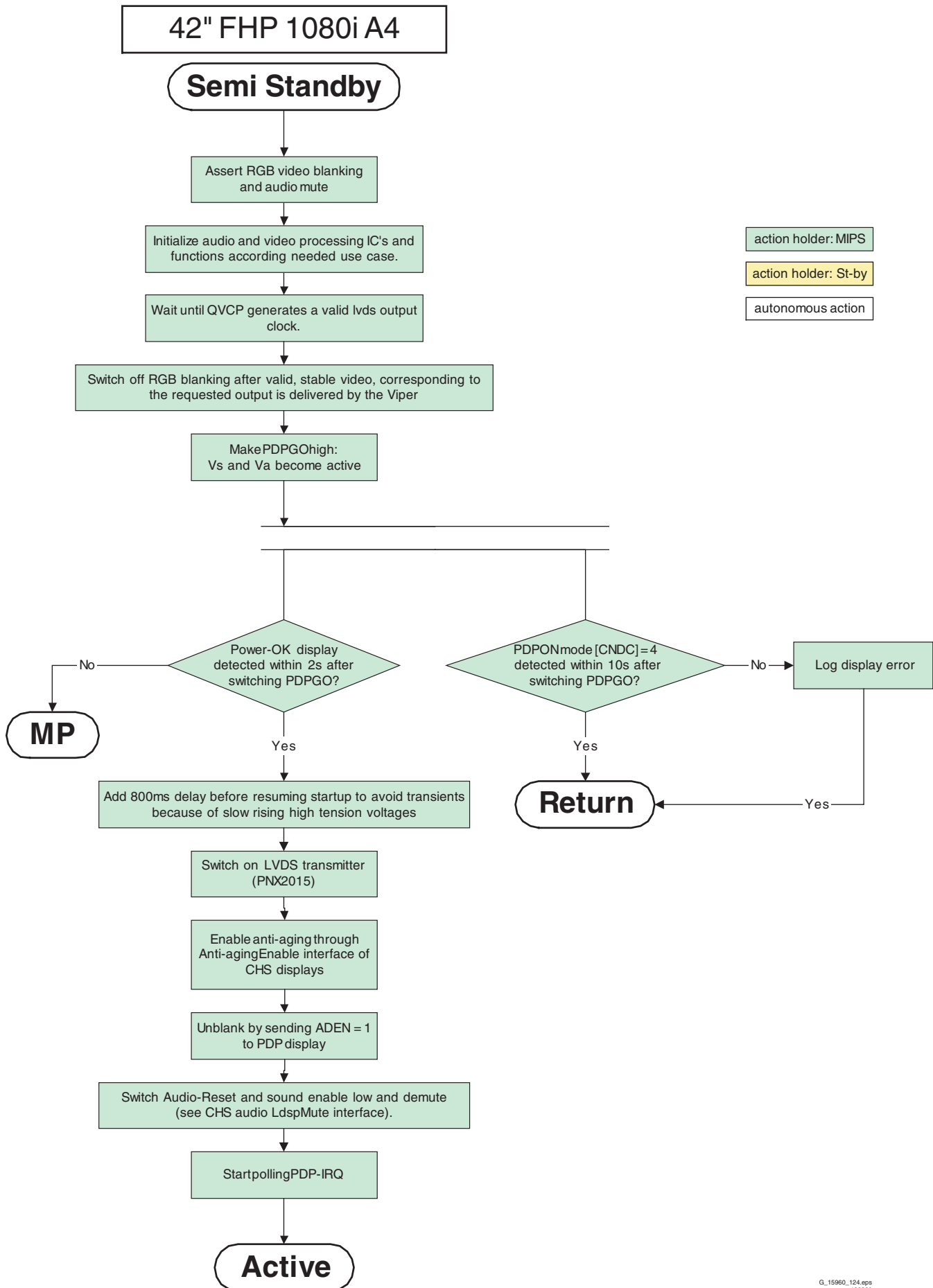


Figure 5-7 "Semi Stand-by" to "Active" flowchart 42" FHP 1080i A4

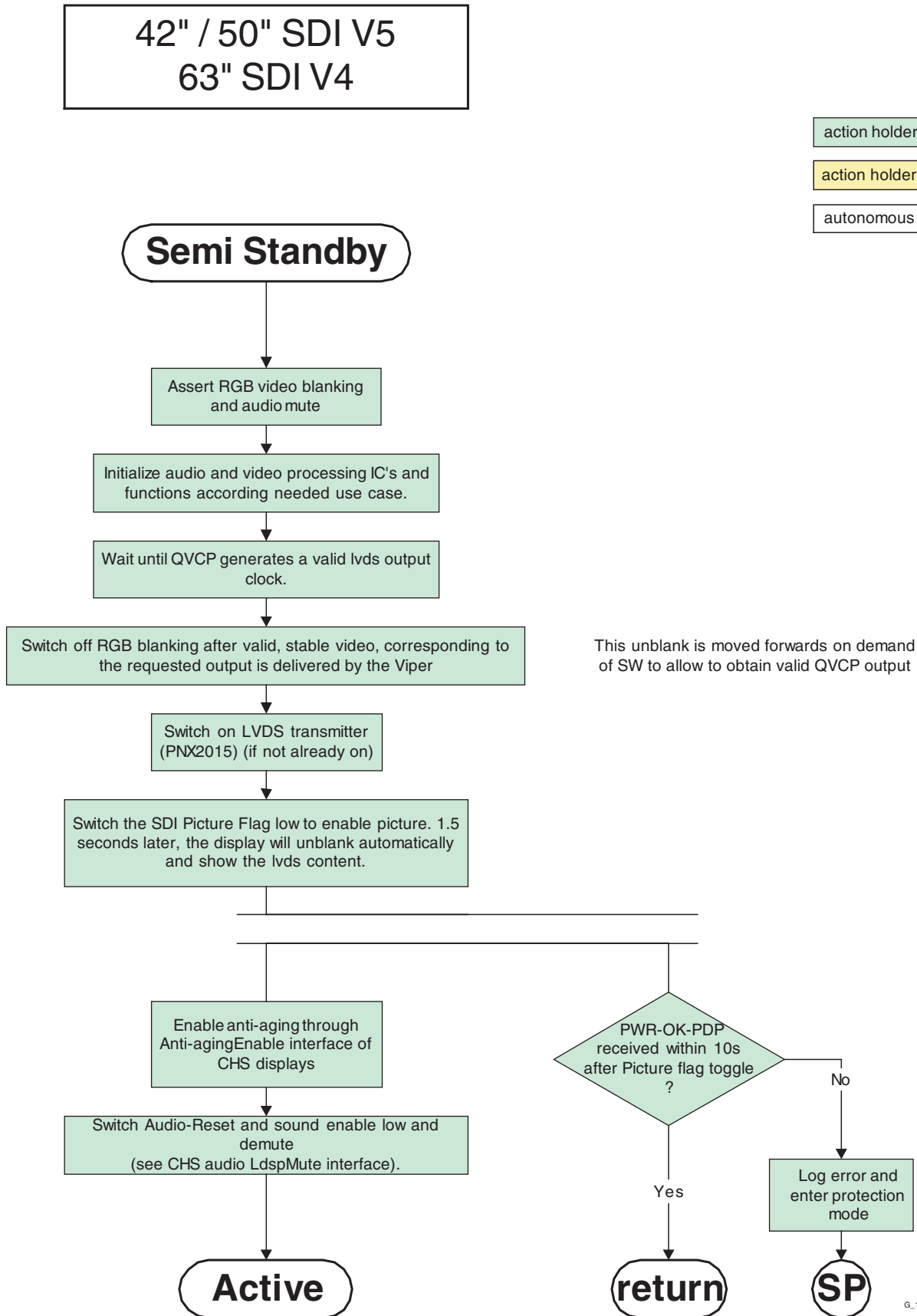
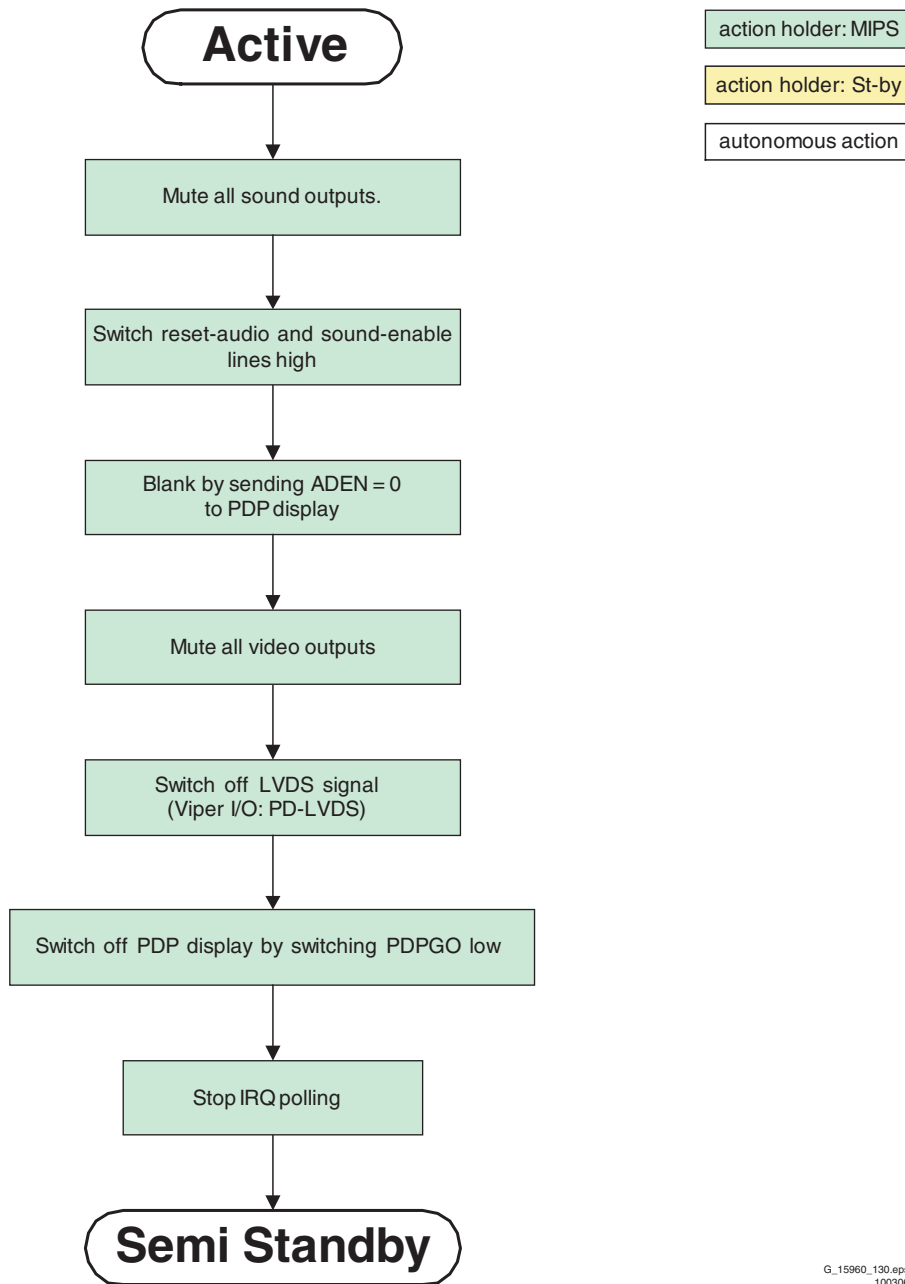


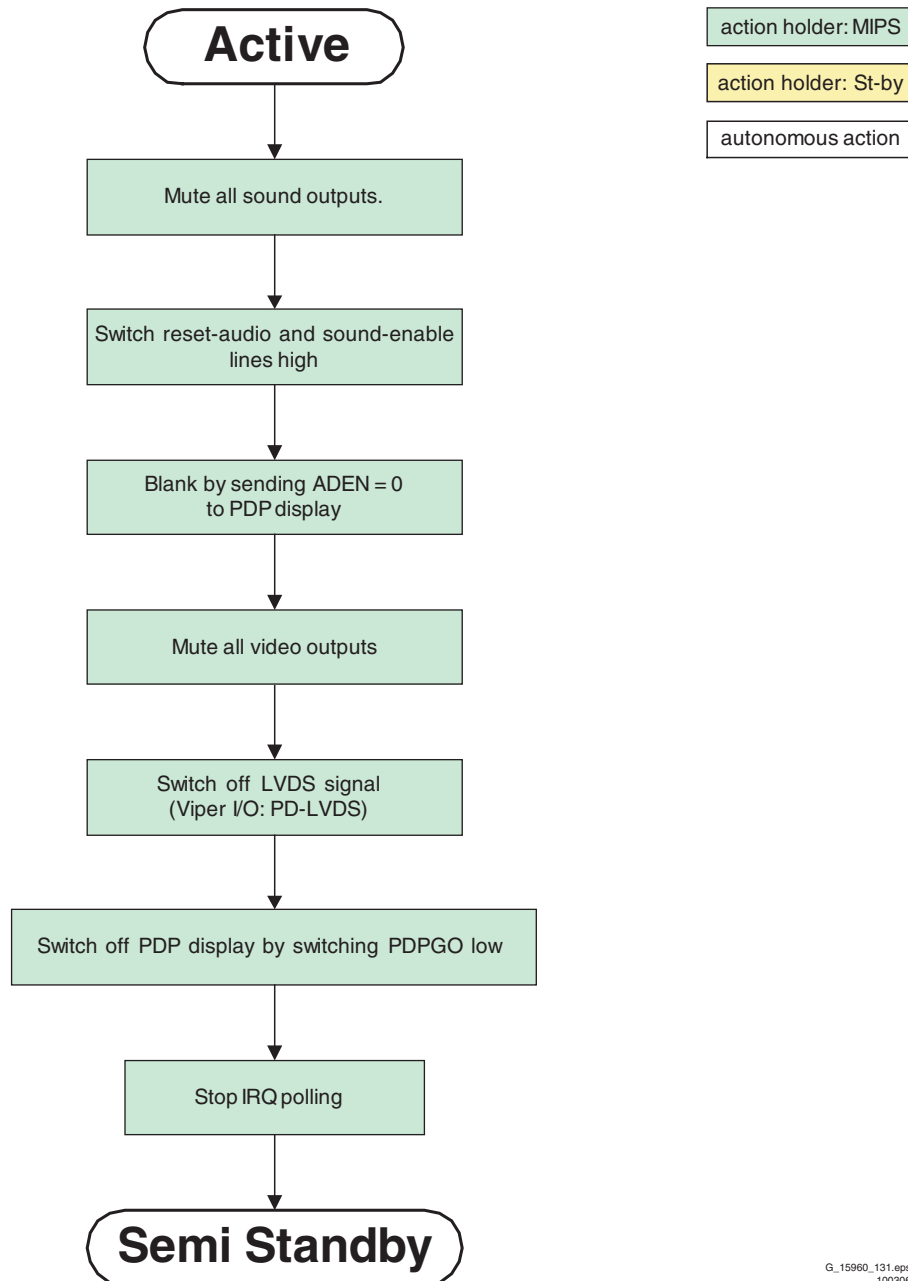
Figure 5-8 "Semi Stand-by" to "Active" flowchart 42 &amp; 50" SDI V5 and 63" SDI V4

## 42" FHP 1024 A3



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100306

Figure 5-9 “Active” to “Semi Stand-by” flowchart 42” FHP 1024 A3

**42" FHP 1080i A4**G\_15960\_131.eps  
100306**Figure 5-10 “Active” to “Semi Stand-by” flowchart 42” FHP 1080i A4**



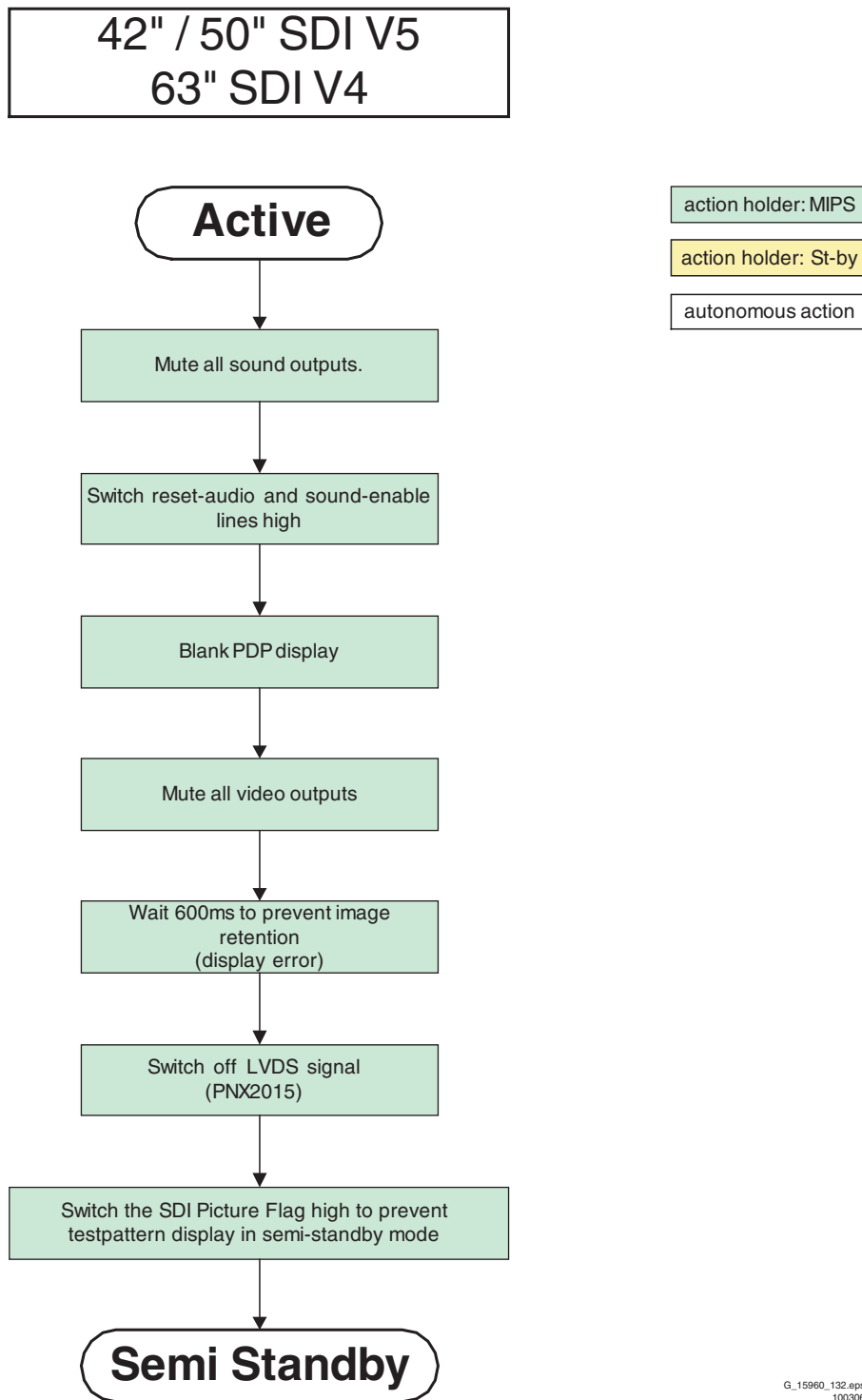


Figure 5-11 “Active” to “Semi Stand-by” flowchart 42 & 50” SDI V5 and 63” SDI V4

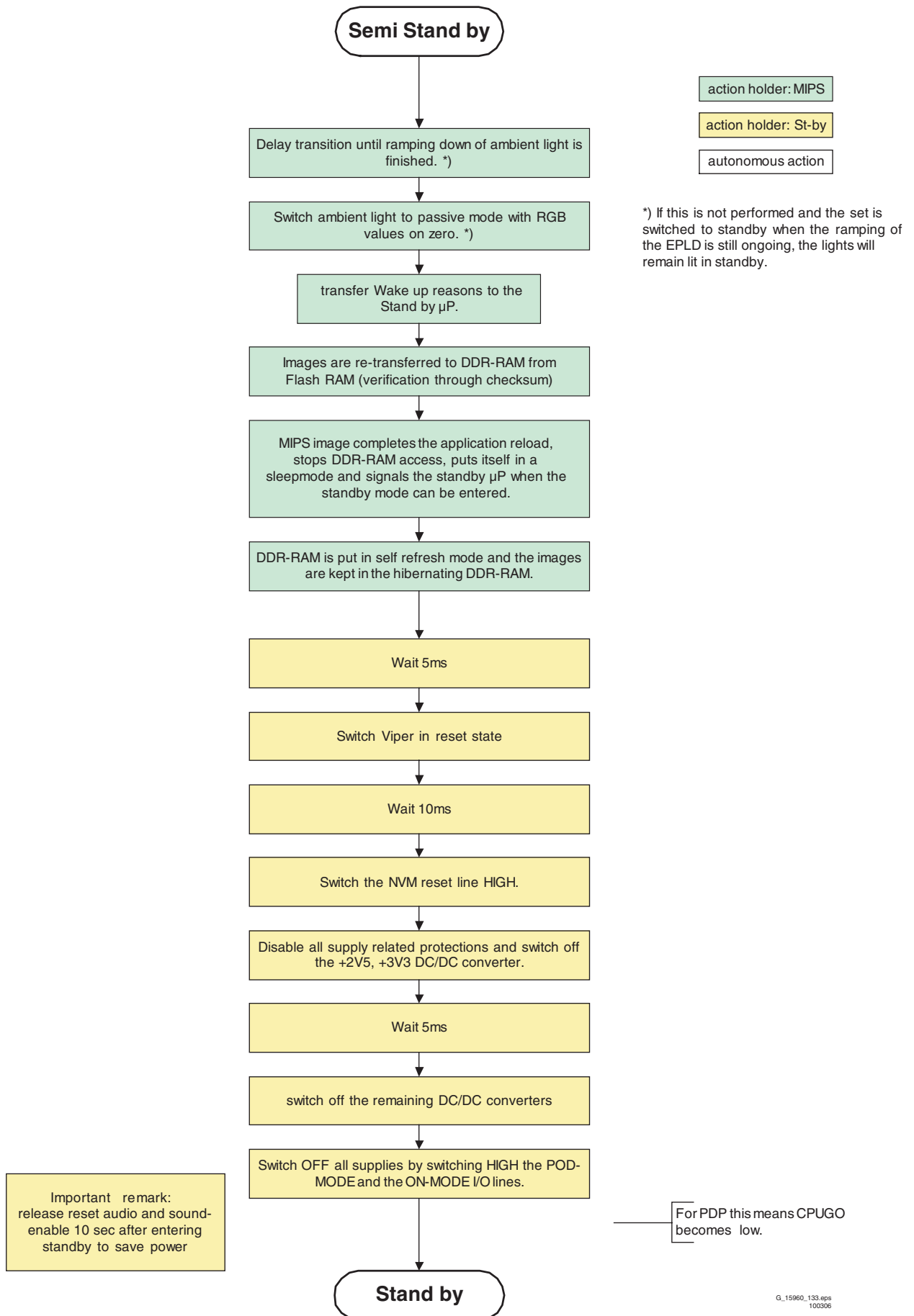


Figure 5-12 “Semi Stand-by” to “Stand-by” flowchart

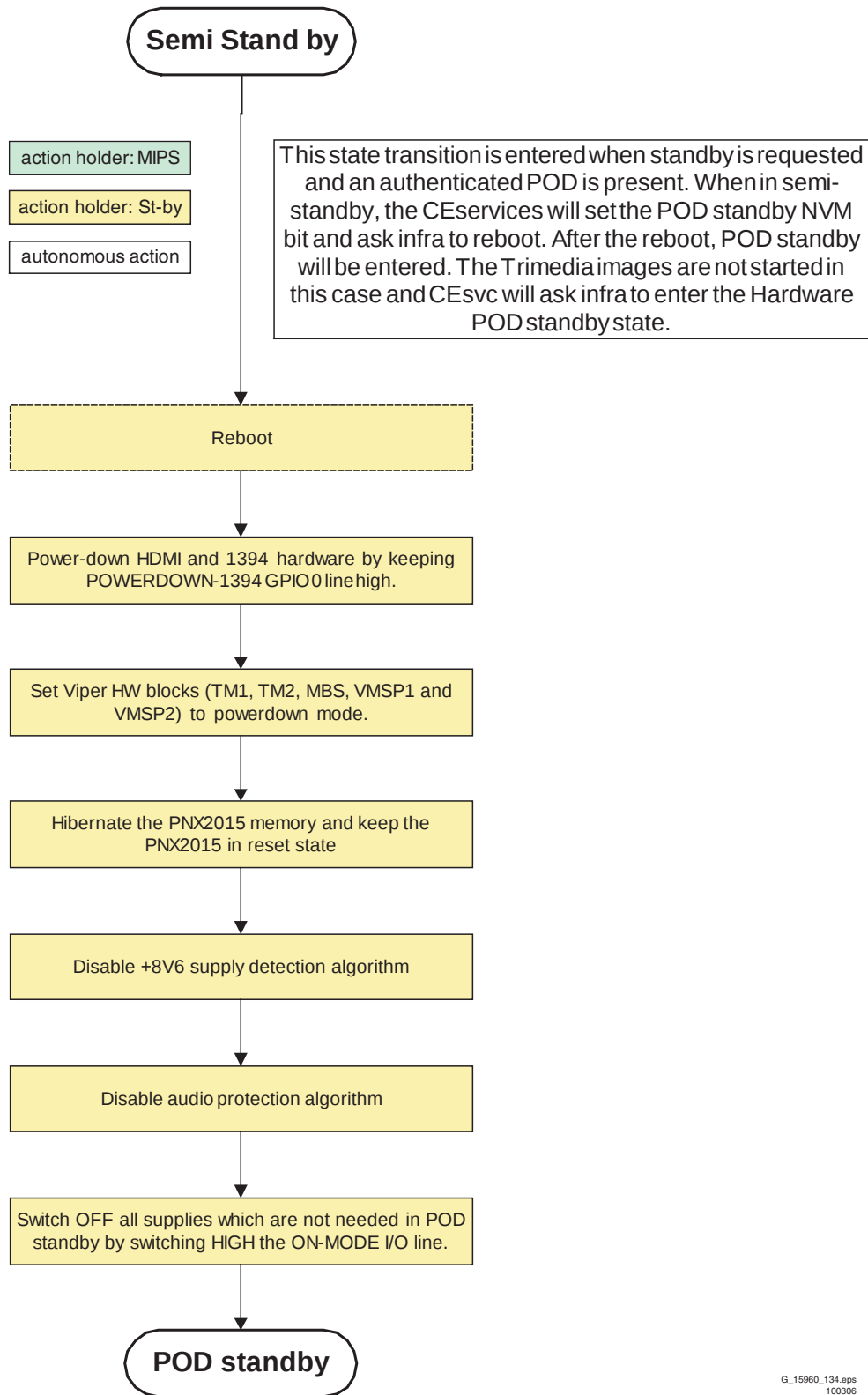


Figure 5-13 “Semi Stand-by” to “POD Stand-by” flowchart

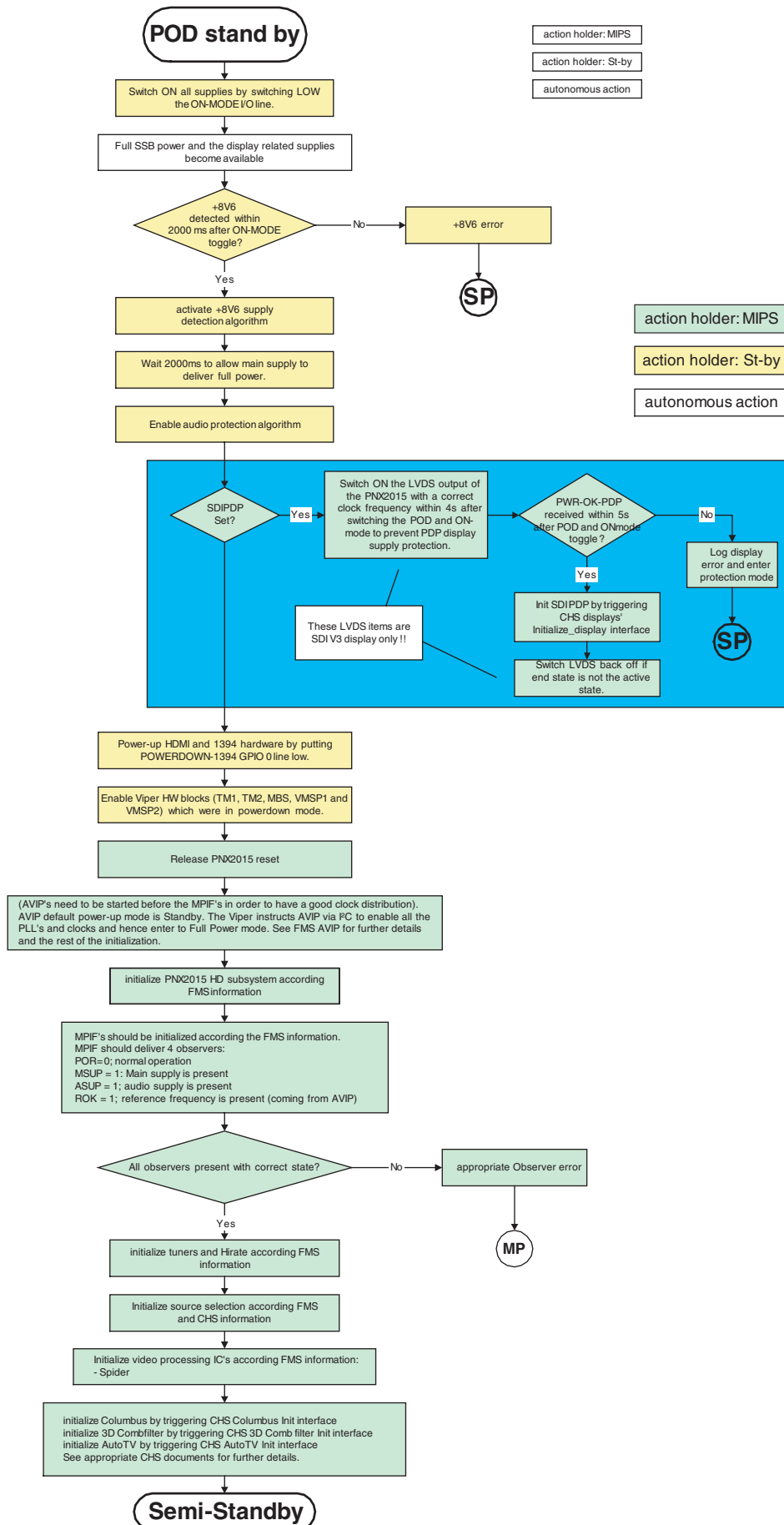


Figure 5-14 "POD Stand-by" to "Semi stand-by" flowchart

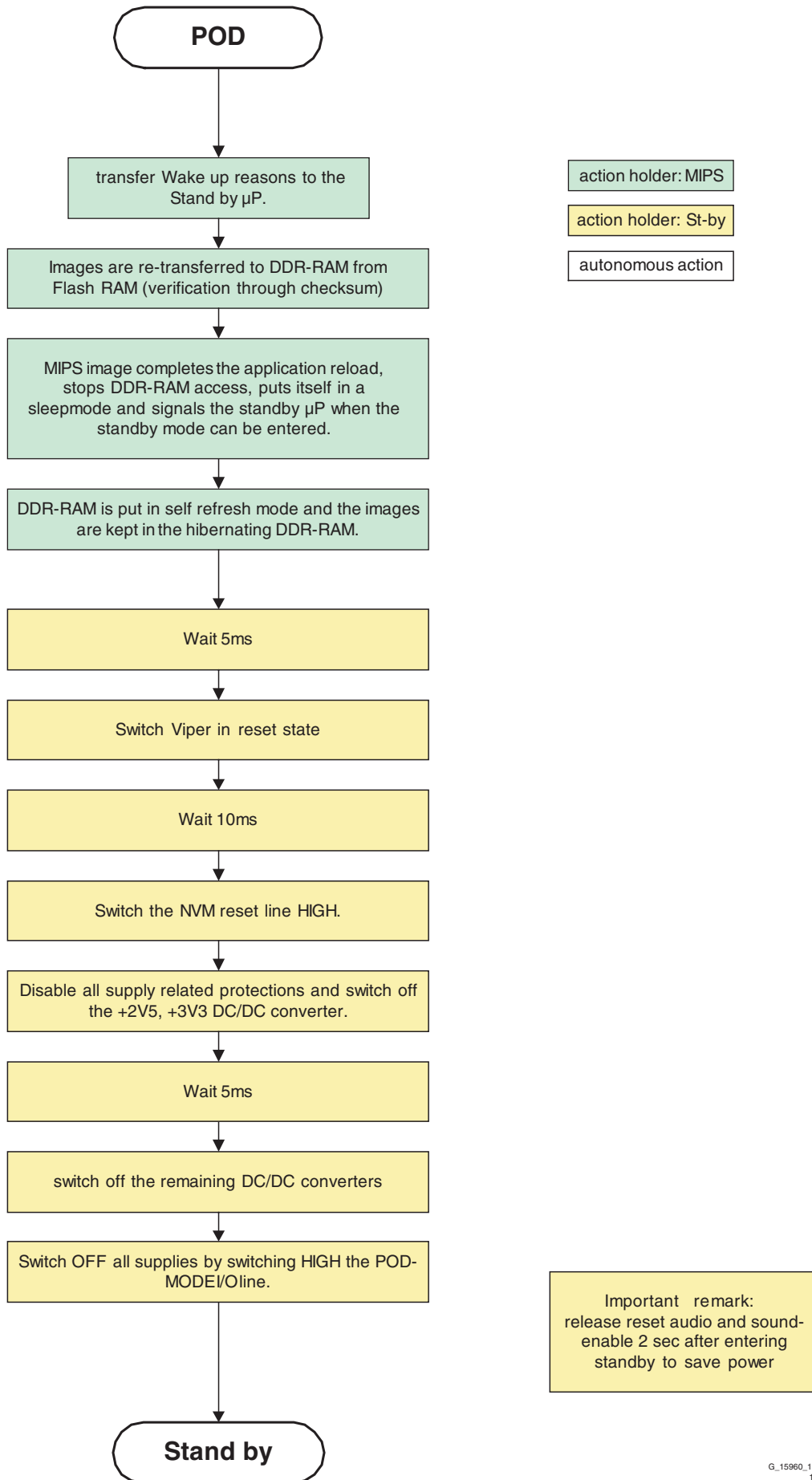


Figure 5-15 “POD” to “Stand-by” flowchart

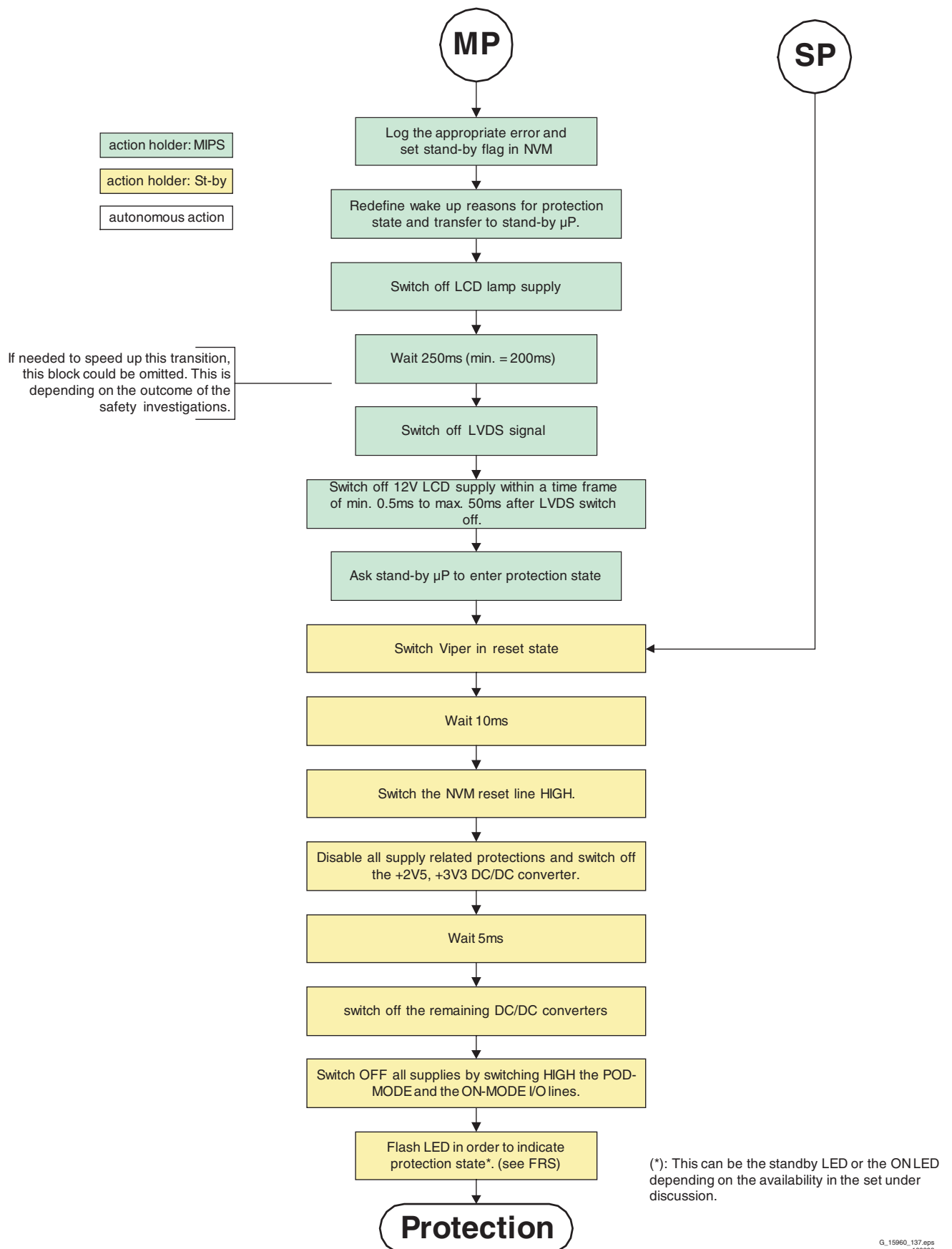


Figure 5-16 “Protection” flowchart



## 5.4 Service Tools

### 5.4.1 ComPair

#### Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:

1. ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
2. ComPair allows very detailed diagnostics (on I<sup>2</sup>C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I<sup>2</sup>C commands yourself because ComPair takes care of this.
3. ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the Force/SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

#### Specifications

ComPair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial (or RS-232) cable.

For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector(s).

The ComPair fault finding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:

- Automatically (by communicating with the television): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I<sup>2</sup>C/UART level. ComPair can access the I<sup>2</sup>C/UART bus of the television. ComPair can send and receive I<sup>2</sup>C/UART commands to the microcontroller of the television. In this way, it is possible for ComPair to communicate (read and write) to devices on the I<sup>2</sup>C/UART buses of the TV-set.
- Manually (by asking questions to you): Automatic diagnosis is only possible if the microcontroller of the television is working correctly and only to a certain extent. When this is not the case, ComPair will guide you through the fault finding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point 17 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. *text or a waveform picture*) that will bring you to the next step in the fault finding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

#### How to Connect

This is described in the chassis fault finding database in ComPair.

**Caution:** It is compulsory to connect the TV to the PC as shown in the picture below (with the ComPair interface in between), as the ComPair interface acts as a level shifter. If one connects the TV directly to the PC (via UART), ICs will be blown!

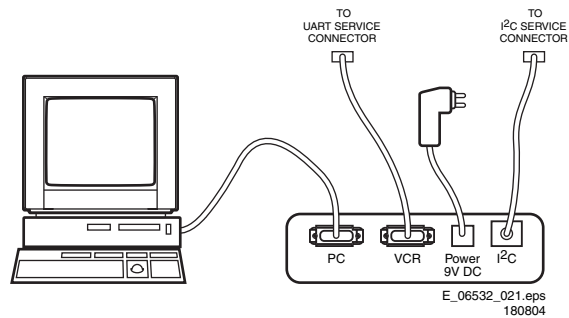


Figure 5-17 ComPair interface connection

#### How to Order

ComPair order codes (EU/AP/LATAM):

- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excl. transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070 (year 2002), 3122 785 60110 (year 2003 onwards).
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003), 3122 785 60130 (year 2004).
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer (non-UK): 4822 727 21632.
- Transformer (UK): 4822 727 21633.
- ComPair interface cable: 3122 785 90004.
- ComPair interface extension cable: 3139 131 03791.
- ComPair UART interface cable: 3122 785 90630.

**Note:** If you encounter any problems, contact your local support desk.

### 5.4.2 LVDS Tool

#### Introduction

This service tool (also called "ComPair Assistant 1") may help you to identify, in case the TV does not show any picture, whether the Small Signal Board (SSB) or the display of a Flat TV is defective.

Furthermore it is possible to program EPLDs with this tool (Byte blaster). Read the user manual for an explanation of this feature.

Since 2004, the LVDS output connectors in our Flat TV models are standardised (with some exceptions). With the two delivered LVDS interface cables (31p and 20p) you can cover most chassis (in special cases, an extra cable will be offered).

When operating, the tool will show a small (scaled) picture on a VGA monitor. Due to a limited memory capacity, it is not possible to increase the size when processing high-resolution LVDS signals (> 1280x960). Below this resolution, or when a DVI monitor is used, the displayed picture will be full size.

Generally this tool is intended to determine if the SSB is working or not. Thus to determine if LVDS, RGB, and sync signals are okay.

#### How to Connect

Connections are explained in the user manual, which is packed with the tool.

**Note:** To use the LVDS tool, you must have ComPair release 2004-1 (or later) on your PC (engine version >= 2.2.05). For every TV type number and screen size, one must choose the proper settings via ComPair. The ComPair file will be updated regularly with new introduced chassis information.

#### How to Order

- LVDS tool (incl. two LVDS cables: 31p and 20p): 3122 785 90671.
- LVDS tool Service Manual: 3122 785 00810.
- LVDS cable 31p/FI -> 31p/FI (for JL2.1 chassis): 3122 785 90861.
- LVDS cable 30p/DF -> 31p/FI (for LC4.3 chassis): 3122 785 90821.
- LVDS cable 41p/FI -> 31p/FI (dual -> single LVDS): 3122 785 90831.
- LVDS cable 20p/DF -> 20p/DF (standard with tool): 3122 785 90731.
- LVDS cable 31p/FI -> 31p/FI (standard with tool): 3122 785 90662.
- LVDS cable 20p/DF -> 20p/DF (for LC4.1 chassis): 3122 785 90851.

## 5.5 Error Codes

### 5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.

When an error occurs, it is added to the list of errors, provided the list is not full. When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.

To prevent that an occasional error stays in the list forever, the error is removed from the list after more than 50 hrs. of operation.

When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

Basically there are three kinds of errors:

- **Errors detected by the Stand-by Processor.** These errors will always lead to protection and an automatic start of the blinking LED for the concerned error (see paragraph "The Blinking LED Procedure"). In these cases SDM can be used to start up (see chapter "Stepwise Start-up"). Note that it can take up to 90 seconds before the TV goes to protection and starts blinking the error (e.g. error 53)
- **Errors detected by VIPER that lead to protection.** In this case the TV will go to protection and the front LED should also blink the concerned error. Depending on the software version it is possible that this mechanism does not work. See also paragraph "Error Codes" -> "Error Buffer" -> "Extra Info".
- **Errors detected by VIPER that do not lead to protection.** In this case the error will be logged into the error buffer and can be read out via ComPair, via blinking LED method, or in case you have picture, via SAM.

### 5.5.2 How to Read the Error Buffer

Use one of the following methods:

- On screen via the SAM (only if you have a picture). E.g.:
  - **00 00 00 00 00:** No errors detected
  - **06 00 00 00 00:** Error code 6 is the last and only detected error
  - **09 06 00 00 00:** Error code 6 was first detected and error code 9 is the last detected error

- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

### 5.5.3 How to Clear the Error Buffer

Use one of the following methods:

- By activation of the "RESET ERROR BUFFER" command in the SAM menu.
- With a normal RC, key in sequence "MUTE" followed by "062599" and "OK".
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

### 5.5.4 Error Buffer

In case of non-intermittent faults, clear the error buffer before you begin the repair (**before** clearing the buffer, write down the content, as this history can give you significant information). This to ensure that old error codes are no longer present. If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

There are several mechanisms of error detection:

- Via error bits in the status registers of ICs.
- Via polling on I/O pins going to the stand-by processor.
- Via sensing of analogue values on the stand-by processor or the Viper.
- Via a "not acknowledge" of an I<sup>2</sup>C communication

Take notice that some errors need more than 90 seconds before they start blinking. So in case of problems wait 2 minutes from start-up onwards, and then check if the front LED is blinking.

Table 5-3 Error code overview

| Error | Description               | Error/Prot | Detected by  | Device   | Defective module          | Result                                       |
|-------|---------------------------|------------|--------------|----------|---------------------------|----------------------------------------------|
| 1     | I <sup>2</sup> C1         | P          | VIPER        | /        | I <sup>2</sup> C1_blocked | Protection + Error blinking                  |
| 2     | I <sup>2</sup> C2         | E          | VIPER        | /        | I <sup>2</sup> C2_blocked | Error logged                                 |
| 3     | I <sup>2</sup> C3         | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 4     | I <sup>2</sup> C4         | P          | VIPER        | /        | I <sup>2</sup> C4_blocked | Protection + Error blinking                  |
| 5     | VIPER does not boot       | P          | Stby $\mu$ P | PNX8550  | /                         | Protection + Error blinking                  |
| 6     | 5V supply                 | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 7     | 8V6 supply                | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 8     | 1.2V DC/DC                | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 11    | 3.3V DC/DC                | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 12    | 12V supply                | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 14    | Audio                     | P          | Stby $\mu$ P | /        | /                         | Protection + Error blinking                  |
| 18    | MPIF1 ref. freq.          | E          | VIPER        | PNX3000  | IF I/O                    | Error logged                                 |
| 25    | Supply fault              | P          | Stby $\mu$ P | n.a.     | /                         | Protection + Error blinking                  |
| 27    | PNX2015 HD subsystem part | E          | VIPER        | /        | /                         | see extra info                               |
| 29    | AVIP 1                    | E          | VIPER        | /        | /                         | see extra info                               |
| 31    | AVIP 2                    | E          | VIPER        | /        | /                         | see extra info                               |
| 32    | MPIF1                     | E          | VIPER        | PNX3000  | Analog 1 front end 1      | Error logged                                 |
| 34    | Tuner1                    | E          | VIPER        | /        | Tuner 1                   | Error logged                                 |
| 36    | OFDM (channel decoder)    | E          | VIPER        | TDA10046 | /                         | Error logged                                 |
| 39    | POD/Common Interface      | E          | VIPER        | STV0701  | /                         | Error logged                                 |
| 43    | Hi Rate Front End         | E          | VIPER        | TDA9975  | HDMI                      | Error logged                                 |
| 44    | NVM                       | P          | Stby $\mu$ P | /        | /                         | see extra info                               |
| 45    | Columbus 1                | E          | VIPER        | PNX2015  | Comb filter               | Error logged                                 |
| 46    | Pacific 3                 | E          | VIPER        | /        | /                         | TV to standby + Error logged                 |
| 53    | VIPER                     | P          | Stby $\mu$ P | PNX8550  | /                         | Protection + Error blinking                  |
| 55    | Spider                    | E          | VIPER        | /        | /                         | see extra info                               |
| 63    | Power OK                  | P          | VIPER        | /        | /                         | Protection + Error blinking (see extra info) |
| 64    | Display                   | E          | VIPER        | /        | /                         | Error logged                                 |

**Extra Info**

- **Rebooting.** When a TV is constantly rebooting due to internal problems, most of the time no errors will be logged or blinked. This rebooting can be recognised via a ComPair interface and Hyperterminal (for Hyperterminal settings, see paragraph "Stand-by software upgrade). You will see that the loggings which are generated by the main software keep continuing. In this case (rebooting) diagnose has to be done via ComPair.
- **Error 1 (I<sup>2</sup>C bus 1 blocked).** When this error occurs, the TV will go to protection and the front LED will blink error 1. Now you can start up the TV via the SDM short-cut pins on the SSB. The TV will start up and ignore the error. Depending on the problem it is even possible that you have picture.
- **Error 2 (I<sup>2</sup>C bus 2 blocked).** Due to hardware restriction (I<sup>2</sup>C bus 2 is the fast I<sup>2</sup>C bus) it will be impossible to start up the VIPER when I<sup>2</sup>C bus 2 is blocked. When this error occurs, the TV will not start (but probably you will see the green led). Starting up the TV via the SDM short-cut pins will not work. So it will not be possible to read out error 2 via internal software (although it will be logged). Use ComPair for further diagnose (e.g. read out the NVM content).
- **Error 3 (I<sup>2</sup>C bus 3 blocked).** There are only three devices on I<sup>2</sup>C bus 3: VIPER, Stand-by Processor, and NVM. The Stand-by Processor is the detection device of this error, so this error will only occur if the VIPER or the NVM is blocking the bus. This error will also blink when the NVM gives no acknowledge on the I<sup>2</sup>C bus. Note that if the 12 V supply is missing, the DC/DC supply on the SSB will not work. Therefore the VIPER will not get supplies and could block I<sup>2</sup>C bus 3. So, a missing 12 V can also lead to an error 3.
- **Error 4 (I<sup>2</sup>C bus 4 blocked).** When this error occurs, the TV will go to protection and the front LED will blink error 4. Now you can start up the TV via the SDM short-cut pins on the SSB. The TV will start up and ignore the error. Depending on the problem it is even possible that you have picture.
- **Error 5 (VIPER does not boot).** This error will point to a severe hardware problem around the VIPER (supplies not

OK, VIPER completely dead, I<sup>2</sup>C link between VIPER and Stand-by Processor broken, etc...).

- **Error 7 (8V6 error).** In case of a TV with SDI display you will see error 7 blink in case of an audio protection. So except a problem with the 8V6 itself it is also possible that there is something wrong with the audio part. See also paragraph "Hardware Protections" for this.
- **Error 14 (Audio protection).** The detection is done on the audio board itself. Several items are monitored: overvoltage, overcurrent, DC level on the speakers and the audio supply voltages. If one of these items fails, the audioprotection will switch off the main supply. All supplies will drop, the standby processor "thinks" there is a mains dip, and will reboot. At the beginning of the boot process, the audio-protection line is monitored: if this line is "active", the set will go to protection and will blink error 14.
- **Error 27 (PNX2015 HD subsystem part).** Diagnosing this error will not be possibly via the normal errorcodes. In case this device can not communicate with the Viper via I<sup>2</sup>C, it will not be possible to initialise the tunnelbus. Hence the software will not be able to start up, and will re-boot constantly. Diagnosing these problems will only be possible via ComPair. In theory it is possible that the error is logged in the NVM (that's why this error is still mentioned here).
- **Error 29 (AVIP 1).** Same remark as for error 27.
- **Error 31 (AVIP 2).** Same remark as for error 27.
- **Error 44 (NVM).** This error will probably never occur because it is masked by error 3 (I<sup>2</sup>C bus 3). The detection mechanism for error 3 checks on an I<sup>2</sup>C acknowledge of the NVM. If NVM gives no acknowledge, the stand-by software assumes that the bus is blocked, the TV goes to protection and error 3 will be blinking..
- **Error 46 (Pacific 3).** When this errors occurs the TV will go to stand-by. The reason for this is, when there is an occasional boot problem of the Pacific, it will look like the TV has started up in stand-by mode, and the customer can switch it on again. When there is an actual problem with or around the Pacific the TV will go to stand-by every time you try to start up. So this behaviour is an indication of a Pacific problem.

- **Error 53.** This error will indicate that the VIPER has started to function (by reading his boot script, if this would have failed, error 5 would blink) but initialization was never completed because of hardware peripheral problems (NAND flash, ...) or software initialization problems. Possible cause could be that there is no valid software loaded (try to upgrade to the latest main software version). Note that it takes 90 seconds before the TV goes to protection in this case.
- **Error 55 (SPIDER error).** Same remark as for error 27.
- **Error 63 (POWER OK).** When this error occurs, it means that the POWER-OK line did not become "high". This error is only applicable for TV's with a SDI display, a FHP display or a Sharp full HD display. Depending on the software version it is possible that the detection mechanism of this error does not function and that the TV keeps rebooting.
- **Error 64 (Display error).** When this error occurs it means that there is a problem with the I<sup>2</sup>C communication towards the display. Although several display types communicate via I<sup>2</sup>C, this error will only work for TV's with a FHP display.

## 5.6 The Blinking LED Procedure

### 5.6.1 Introduction

The blinking LED procedure can be split up into two situations:

- Blinking LED procedure in case of a protection detected by the stand-by processor. In this case the error is automatically blinked. This will be only one error, namely the one that is causing the protection. Therefore, you do not have to do anything special, just read out the blinks. A long blink indicates the decimal digit, a short blink indicates the units.
- Blinking LED procedure in the "on" state. Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the blinking LED procedure is activated in the "on" state, the front LED will show (blink) the contents of the error-buffer. Error-codes > 10 are shown as follows:

1. "n" long blinks (where "n" = 1 - 9) indicating decimal digit,
2. A pause of 1.5 s,
3. "n" short blinks (where "n" = 1 - 9),
4. A pause of approx. 3 s.
5. When all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
6. The sequence starts again.

**Example:** Error 12 8 6 0 0.

After activation of the SDM, the front LED will show:

1. 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1.5 s,
2. 2 short blinks of 250 ms followed by a pause of 3 s,
3. 8 short blinks followed by a pause of 3 s,
4. 6 short blinks followed by a pause of 3 s,
5. 1 long blink of 3 s to finish the sequence,
6. The sequence starts again.

### 5.6.2 How to Activate

Use one of the following methods:

- **Activate the SDM.** The blinking front LED will show the entire contents of the error buffer (this works in "normal operation" mode).
- **Transmit the commands "MUTE" - "062500" - "OK" with a normal RC.** The complete error buffer is shown. Take notice that it takes some seconds before the blinking LED starts.
- **Transmit the commands "MUTE" - "06250x" - "OK" with a normal RC** (where "x" is a number between 1 and 5). When x= 1 the last detected error is shown, x= 2 the

second last error, etc.... Take notice that it takes some seconds before the blinking LED starts.

## 5.7 Protections

### 5.7.1 Software Protections

Most of the protections and errors use either the stand-by microprocessor or the VIPER controller as detection device. Since in these cases, checking of observers, polling of ADCs, filtering of input values are all heavily software based, these protections are referred to as software protections. There are several types of software related protections, solving a variety of fault conditions:

- **Protections related to supplies:** check of the 12V, +5V, +8V6, +1.2V and +3.3V.
- **Protections related to breakdown of the safety check mechanism.** E.g. since a lot of protection detections are done by means of the VIPER, failing of the VIPER communication will have to initiate a protection mode since safety cannot be guaranteed any more.

#### *Remark on the Supply Errors*

The detection of a supply dip or supply loss during the normal playing of the set does not lead to a protection, but to a cold reboot of the set. If the supply is still missing after the reboot, the TV will go to protection.

#### *Protections during Start-up*

During TV start-up, some voltages and IC observers are actively monitored to be able to optimise the start-up speed, and to assure good operation of all components. If these monitors do not respond in a defined way, this indicates a malfunction of the system and leads to a protection. As the observers are only used during start-up, they are described in the start-up flow in detail (see paragraph "Stepwise Start-up").

### 5.7.2 Hardware Protections

There are no real hardware protections in this chassis..

Although, in case of an audio problem, the audio protection circuit will switch off the main supply. The stand-by microprocessor will interpret this as a mains dip and will try to start up again.

In case of a TV with SDI display this will probably lead to protection error 7 (8V6 error) and an internal error 11 (so it looks like an overvoltage protection of the SDI supply itself). In other cases it will lead to error 14 (audio protection).

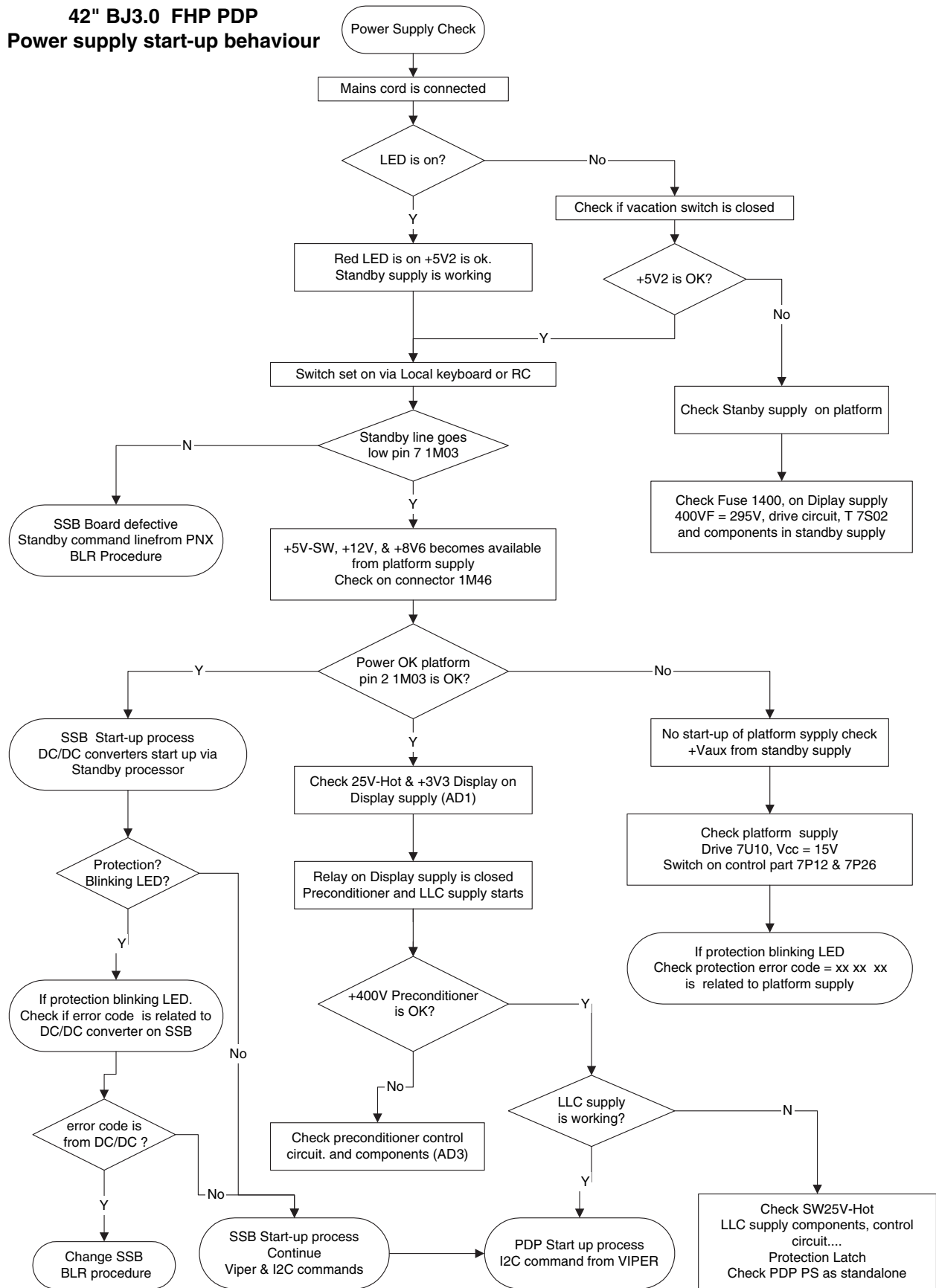
#### *Repair Tips*

- It is also possible that you have an audio DC protection because of an interruption in one or both speakers (the DC voltage that is still on the circuit cannot disappear through the speakers).

## 5.8 Fault Finding and Repair Tips

Read also paragraph "Error Codes" - "Extra Info".

### 42" BJ3.0 FHP PDP Power supply start-up behaviour



G\_15960\_114.eps  
090306

Figure 5-18 First line fault find tree

### 5.8.1 Exit "Factory Mode"

When an "F" is displayed in the screen's right corner, this means that the set is in "Factory" mode, and it normally happens after a new SSB has been mounted. To exit this mode, push the "VOLUME minus" button on the TV's keyboard control for 5 seconds and restart the set.

When a DVBT TV starts up in factory mode, the TV will tune to preset 0. When there is no channel installed on preset 0, there will be no picture and it will look like the set is in standby mode. De-activating factory mode can also be done via the above method.

### 5.8.2 MPIF

Important things to make the MPIF work:

- Supply.
- Clock signal from the AVIP.
- I<sup>2</sup>C from the VIPER.

When there is no sound an external sources, check the audio supply of the MPIF.

### 5.8.3 AVIP

Important things to make the AVIP work:

- Supplies.
- Clock signal from the VIPER.
- I<sup>2</sup>C from the VIPER (error 29 and 31).

### 5.8.4 PACIFIC 3

In case the Pacific fails, the TV will go to stand-by. The reason for this is, when there is an occasional boot problem of the Pacific, it will look like the TV has started up in stand-by mode, and the customer can switch it on again. When there is an actual problem with or around the Pacific the TV will go to stand-by every time you try to start up. So this behaviour is an indication of a Pacific problem.

### 5.8.5 Ambilight

Note: in case of Ambilight protection, the TV itself will not go to protection, only the Ambilight board. When you disconnect the TV from the mains and reconnect again, the Ambilights will work again.

In case of multiple protections, check and replace the inverter transformers and/or the lamp unit(s).

Protections on the ambilight boards:

**Parallel arcing protection.** In normal operation the inverter frequency is  $\pm 63$  kHz. In case of short circuit of the transformer output the frequency is  $> 100$  kHz. Protection is done via sensing the switching frequency.

**Serial arcing protection.** The detection of the arcing is done in the ground wire of lamp units. The  $\mu$ Processor is counting the protection pulses. When 50 pulses are counted within 2 seconds protection will be triggered.

### 5.8.6 Sanken display supply.

All 42" LCD sets for this chassis have a Sanken display supply. If this supply fails there will be no error or protection because there is no feedback foreseen from the supply towards the SSB. The result of a failing Sanken display supply could be that there is no picture, but that you will probably have sound and 1 out of 3 ambilights will still work (in case ambilight is switched on).

Another result of a failing Sanken display is of course that the set is completely dead.

When the primary circuit of the platform supply fails, there is a high possibility that the main fuse of the Sanken display supply will break. In this case the Sanken supply must not be replaced completely. That fuse can be ordered separately (see partslist). For safety reasons, make sure to use the correct fuse type.

## 5.8.7 DC/DC Converter

### Introduction

- The best way to find a failure in the DC-DC converters is to check their starting-up sequence at power-on via the mains cord, presuming that the standby  $\mu$ P is operational.
- If the input voltage of DC-DC converters is around 12V (measured on decoupling capacitors 2U17/2U25/2U45) and the enable signals are low (active) then the output voltages should have their normal values. First, the standby  $\mu$ P activates the +1V2 supply (via ENABLE-1V2) then, after this voltage becomes present and is detected OK (about 100ms), the other two voltages (+2V5 and +3V3) will be activated (via ENABLE-3V3). The Vtun generator (present only for the analogue version of Jaguar Baby) will generate +33V for the analogue tuner as soon as the 12V/3.3V DC-DC converter will start operating.
- The consumption of controller IC 7U00 is around 30mA (that means around 300mV drop voltage across resistor 3U22).
- The current capability of DC-DC converters is quite high (short-circuit current is 7 to 10A), therefore if there is a linear integrated stabilizer that, for example delivers 1.8V from +3V3 with its output overloaded, the +3V3 stays usually at its normal value even though the consumption from +3V3 increases significantly.
- The +2V5 supply voltage is obtained via a linear stabilizer made with discrete components that can deliver a lot of current, therefore in case +2V5 (or +2V5D) is short-circuited to GND then +3V3 will not have the normal value but much less. There is a +2V5D low power linear stabilizer (to supply the DDR memories in standby mode) that is not used. In normal operation mode the value of this supply voltage will be close to +2V5 (20..30 mV difference).
- The supply voltages +5V and +8V6 are available from connector 1M46; they are not protected by fuses. +12VSW is protected for over-currents by the fuse 1U04 while 1U01 is protecting in case of defects in DC-DC converters. There are on-board switches for +8V6-SW (see "DC-DC CONNECTIONS" schematic) and +12VSW but they are not used (by-passed).

### Fault Finding

- **Symptom:** +1V2, +2V5 and +3V3 not present (even for a short while  $\sim 10$ ms)
  1. Check 12V availability (fuse 1U01, resistor 3U22, power MOS-FETs) and enable signal ENABLE-1V2 (active low),
  2. Check the voltage on pin 9 (1.5V),
  3. Check for +1V2 output voltage short-circuit to GND that can generate pulsed over-currents 7...10A through coil 5U03,
  4. Check the over-current detection circuit (2U12 or 3U97 interrupted).
- **Symptom:** +1V2 present for about 100ms, +2V5 and +3V3 not rising
  1. Check the ENABLE-3V3 signal (active LOW),
  2. Check the voltage on pin 8 (1.5V),
  3. Check the under-voltage detection circuit (the voltage on collector of transistor 7U10-1 should be less than 0.8V),
  4. Check for output voltages short-circuits to GND (+3V3, +2V5 and +2V5D) that can generate pulsed over-currents 7...10A through coil 5U00,
  5. Check the over-current detection circuit (2U18 or 3U83 interrupted).

- **Symptom:** +1V2 OK, +2V5 and +3V3 present for about 100ms. **Cause:** SUPPLY-FAULT line stays low even though the +3V3 and +1V2 is available - the standby  $\mu$ P is detecting that and switching off all supply voltages.
  1. Check the value of +2V5 and the drop voltage across resistor 3U22 (they could be too high),
  2. Check if +1V2 or +3V3 are higher than their normal values - that can be due to defective DC feedback of the respective dc-dc converter (ex. 3U18 or 3UA7).
- **Symptom:** +1V2, +2V5 and +3V3 look ok, except the ripple voltage that is increased (audible noise can come from the filtering coils 5U00 or 5U03). **Cause:** instability of the frequency and/or duty cycle of one or both dc-dc converters.
  1. Check the resistor 3U06, decoupling capacitors, AC feedback circuits (2U20 + 2U21 + 3U14 + 3U15 for +1V2 or 2U19 + 2U85 + 3U12 + 3U13 for +3V3), compensation capacitors 2U09, 2U10, 2U23 and 2U73, IC 7U00.
- **Symptom:** +1V2, +2V5 and +3V3 ok, no +Vtun (analogue sets only). **Cause:** the "VTUN GENERATOR" circuit (second schematic) is defective.
  1. Check transistor 7U24 (has to have gate pulses of about 10V amplitude and drain pulses of about 35V amplitude) and surrounding components.

**Note:** fuse 1U01 broken means usually a pair of power MOS-FETs (7U01 or 7U03) defective. The IC 7U00 should be replaced as well in this case

## 5.9 Software Upgrading

### 5.9.1 Introduction

The set software and security keys are stored in a NAND-Flash, which is connected to the VIPER via the PCI bus.

It is possible **for the user** to upgrade the **main** software via the USB port. This allows replacement of a software image in a stand alone set, without the need of an E-JTAG debugger. A description on how to upgrade the main software can be found in chapter 3 "Directions For Use".

**Important:** When the NAND-Flash must be replaced, a new SSB must be ordered, due to the presence of the security keys!!! (copy protection keys, MAC address, for US the POD keys, ...). See table "SSB service kits" for the order codes. Perform the following actions after SSB replacement:

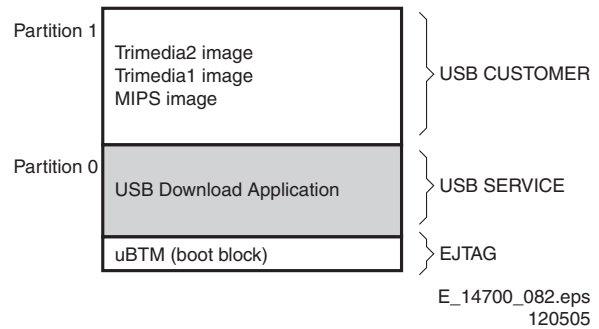
1. Set the correct option codes (see sticker inside the TV).
2. Update the TV software (see chapter 3 for instructions).
3. Perform the alignments as described in chapter 8.
4. Check in CSM if the HDMI keys are valid.

**Table 5-4 SSB service kits**

| Model Number | New SSB order code |
|--------------|--------------------|
| 42PF9631D/10 | 3104 328 47151     |
| 50PF9631D/10 | 3104 328 47151     |
| 42PF9968D/10 | 3104 328 47171     |
| 42PF9531/79  | 3104 328 47181     |
| 42PF9531/98  | 3104 328 47181     |
| 50PF9531/69  | 3104 328 47181     |
| 42PF9531/93  | 3104 328 47191     |

### 5.9.2 Main Software Upgrade

The software image resides in the NAND-Flash, and is formatted in the following way:



**Figure 5-19 NAND-Flash format**

Executables are stored as files in a file system. The boot loader (uBTM) will load the USB Download Application in partition 0 (USB drivers, boot script, etc.). This application makes it then possible to upgrade the main software via USB.

Installing "Partition 0" software is possible via an external EJTAG tool, but also in a special way with the USB stick (see description in paragraph "Partition 0").

#### Partition 1 (Customer)

To do a main software upgrade (partition 1) via USB, the set must be operational, and the "Partition 0" files for the VIPER **must** be installed in the NAND-Flash!

The new software can be uploaded to the TV by using a portable memory device or USB storage compliant devices (e.g. USB memory stick). You can download the new software from the Philips website to your PC.

#### Partition 0 (Service)

If the "Partition 0" software is corrupted, the software needs to be re-installed.

To upgrade this "USB download application" (partition 0 except the boot block), insert an USB stick with the correct software, and press the "red" button on the remote control (in "TV" mode) when it is asked via the on screen text.

#### Caution:

- The USB download application will now erase **both** partitions (except the boot block), so you need to reload the main SW after upgrading the USB download application. As long as this is not done, the USB download application will start when the set is switched "on".
- When something goes wrong during the progress of this method (e.g. voltage dip or corrupted software file), the set will not start up, and can only be recovered via the EJTAG tool!

### 5.9.3 Manual Start of the Software Upgrade Application

Normally, the software upgrading procedure will start automatically, when a memory device with the correct software is inserted, but in case this does not work, it is possible to force the TV into the software upgrade application. To do so:

- Disconnect the TV from the Mains/AC Power.
- Press the "OK" button on a Philips DVD RC-6 remote control (it is also possible to use the TV remote in "DVD" mode).
- Keep the "OK" button pressed while connecting the TV to the Mains/AC Power.
- The software upgrade application will start.
- When a memory device with upgrade software is connected, the upgrade process will start.



#### 5.9.4 Stand-by Software Upgrade

There are two methods now to upgrade stand-by software:

##### **Upgrade via USB**

In this chassis it is possible to upgrade stand-by software via a USB stick. The method is similar to upgrading main software via USB.

Use the following steps:

1. create a directory "upgrades" on your USB stick.
2. Copy the stand-by software (delivered via the Service organisation) into this directory.
3. Insert the USB stick into the TV.
4. Start the download application manually (see paragraph "Manual start of the Software Upgrade Application".
5. Select the appropriate file and press the red button to upgrade:

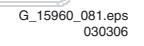
##### **Upgrade via PC and ComPair interface**

It will be possible to upgrade the Stand-by software via a PC and the ComPair interface. Check paragraph "ComPair" on how to connect the interface. To upgrade the Stand-by software, use the following steps:

1. Disconnect the TV from the Mains/AC Power.
2. Short circuit the SPI pins [2] on the SSB. They are located outside the shielding (see figure "Service mode pads").
3. Keep the SPI pins shorted while connecting the TV to the Mains/AC Power.
4. Release the short circuit after approx. two seconds.
5. Start up HyperTerminal (can be found in every Windows application via Programs -> Accessories -> Communications -> HyperTerminal. Use the following settings:
  - COM1
  - Bits per second = 38400
  - Data bits = 8
  - Parity = none
  - Stop bits = 1
  - Flow control = Xon / Xoff.
6. Press "Shift U" on your PC keyboard. You should now see the following info:
  - PN2015 Loader V1.0
  - 19-09-2003
  - DEVID=0x05
  - Erasing
  - MCSUM=0x0000
  - =
7. If you do not see the above info, restart the above procedure, and check your HyperTerminal settings and the connections between PC and TV.
8. Via "Transfer" -> "Send text file ...", you can send the proper upgrade file to the TV. This file will be distributed via the Service Organization.
9. After successful programming, you must see the following info:
  - DCSUM=0xECB3
  - :Ok
  - MCSUM=0xECB3
  - Programming
  - PCSUM=0xECB3
  - Finished
10. If you do not see this info, restart the complete procedure.
11. Close HyperTerminal.
12. Disconnect and connect Mains/AC Power again.

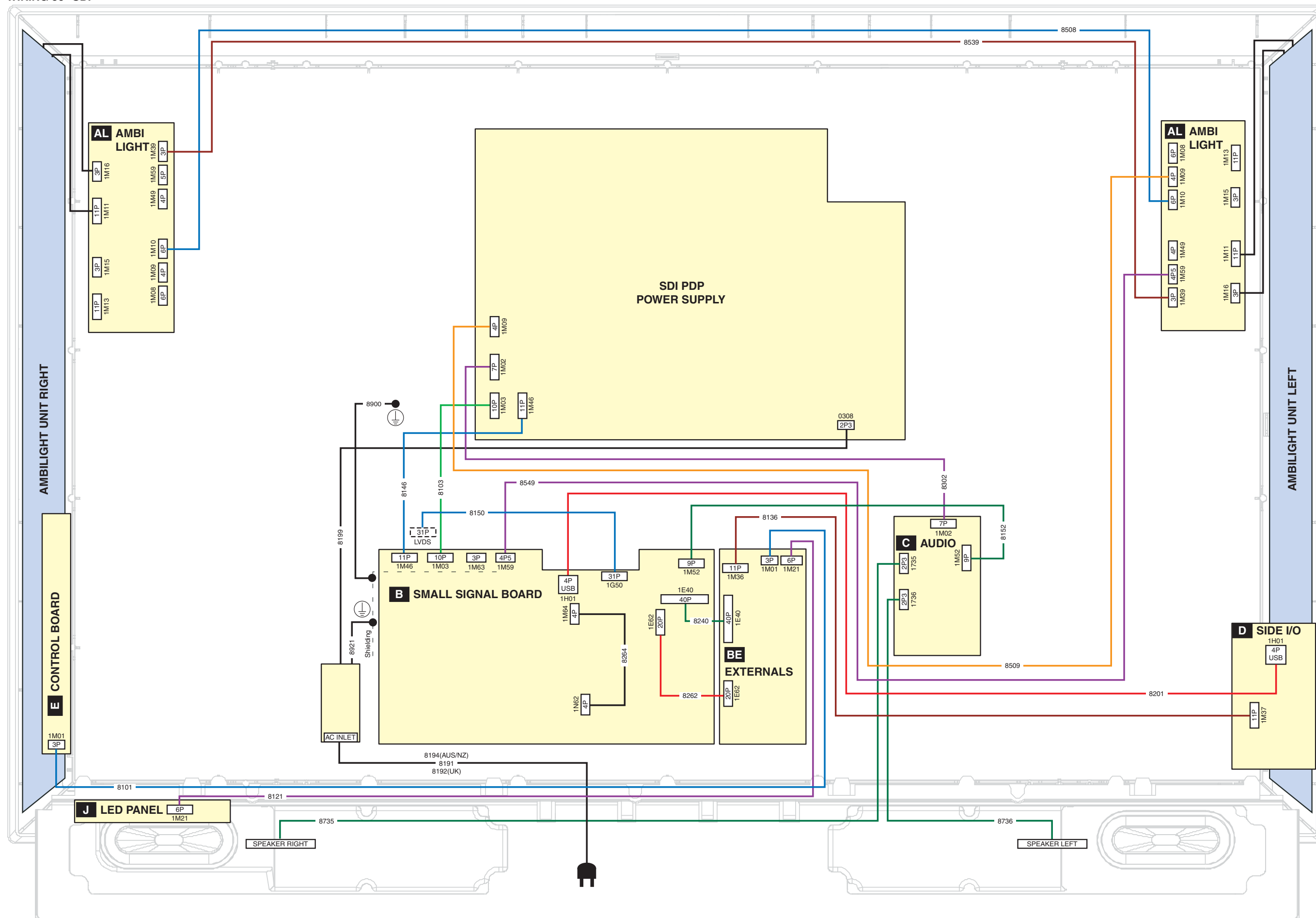
**Personal Notes:**

## Wiring Diagram 42" FHP

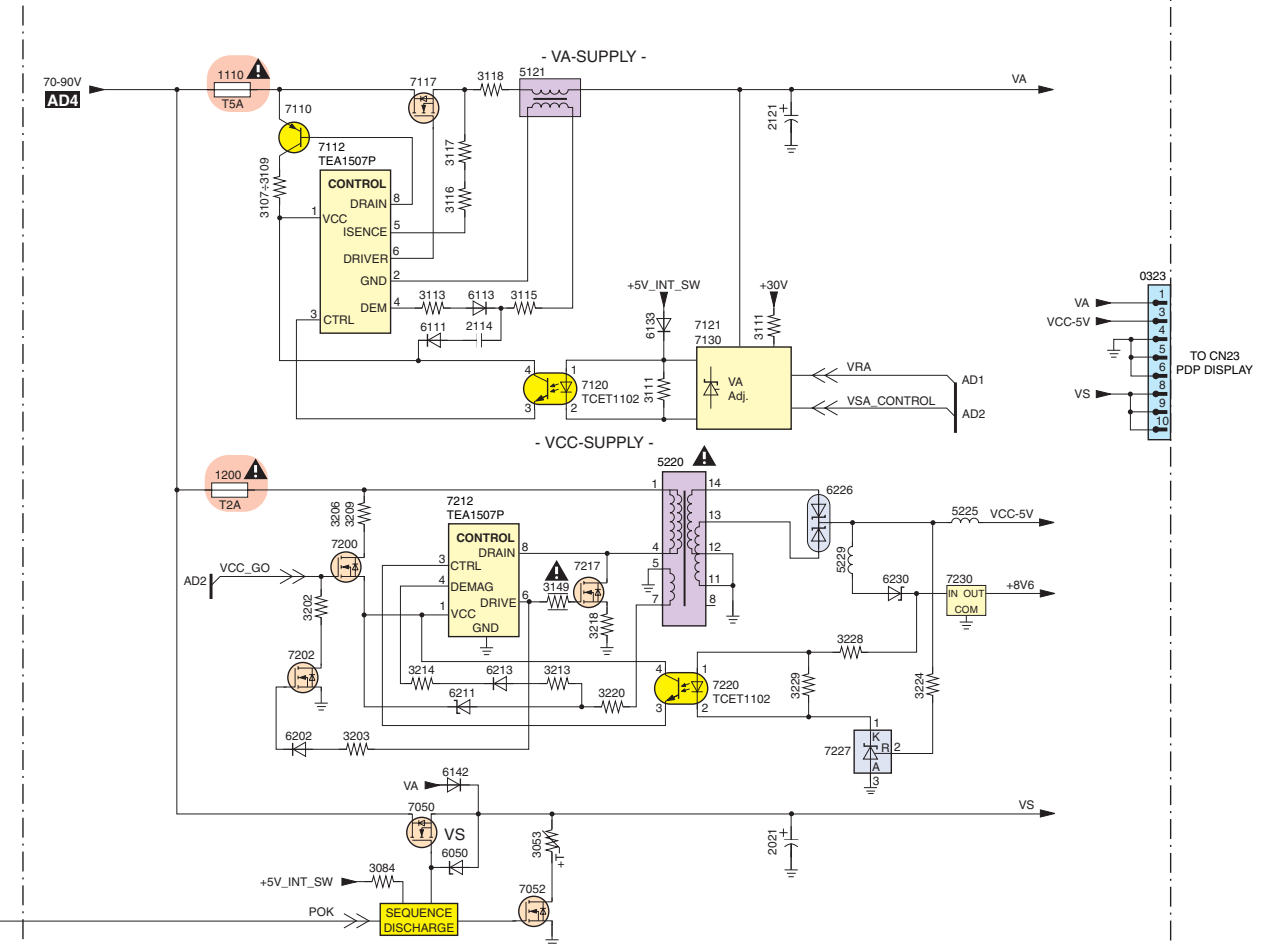
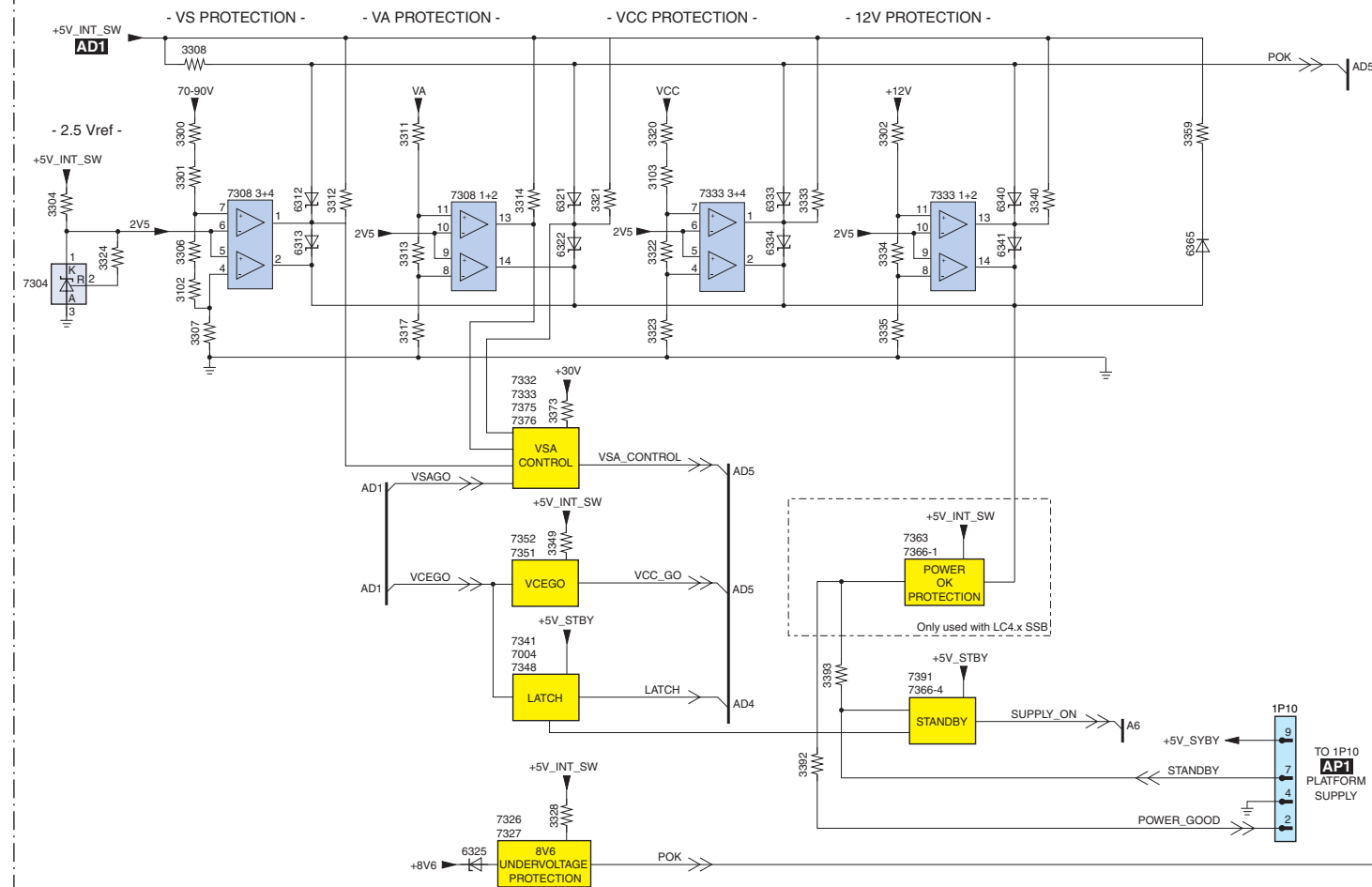
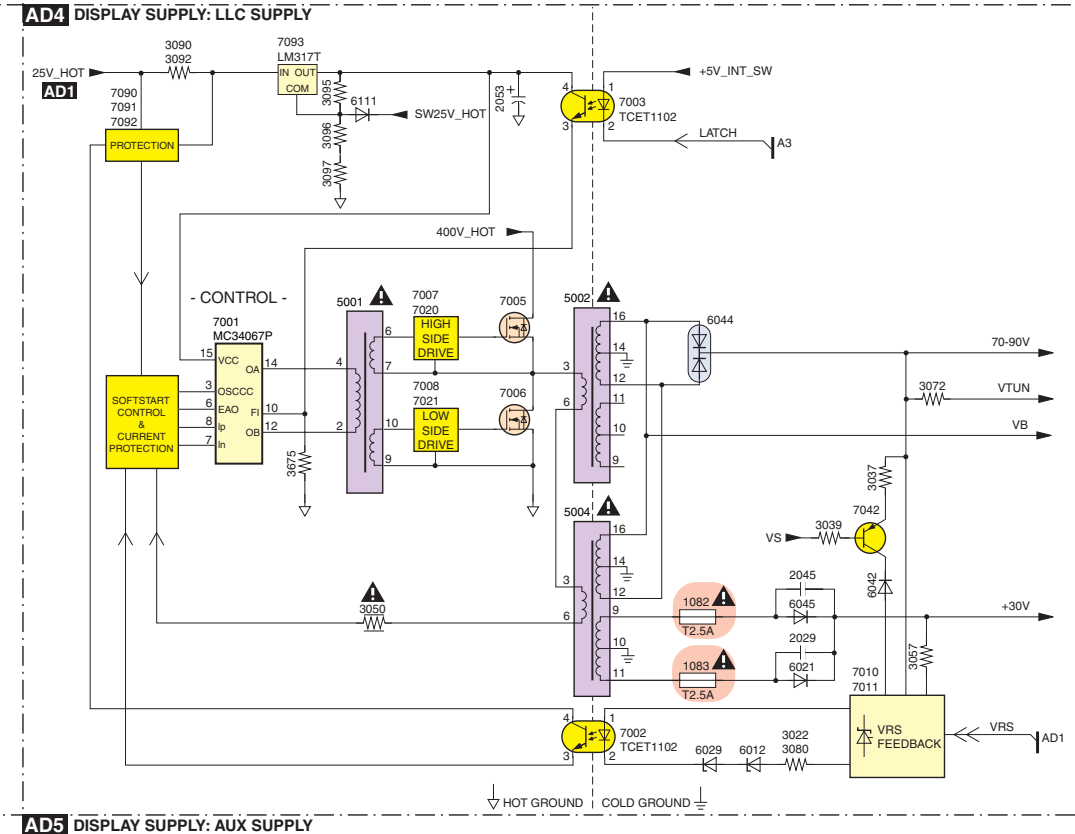
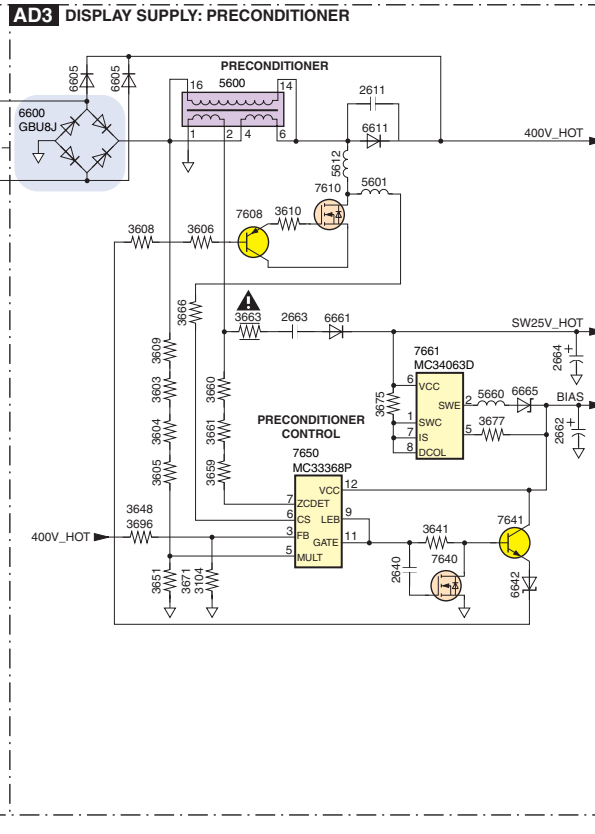


## Wiring Diagram 50" SDI

WIRING 50" SDI

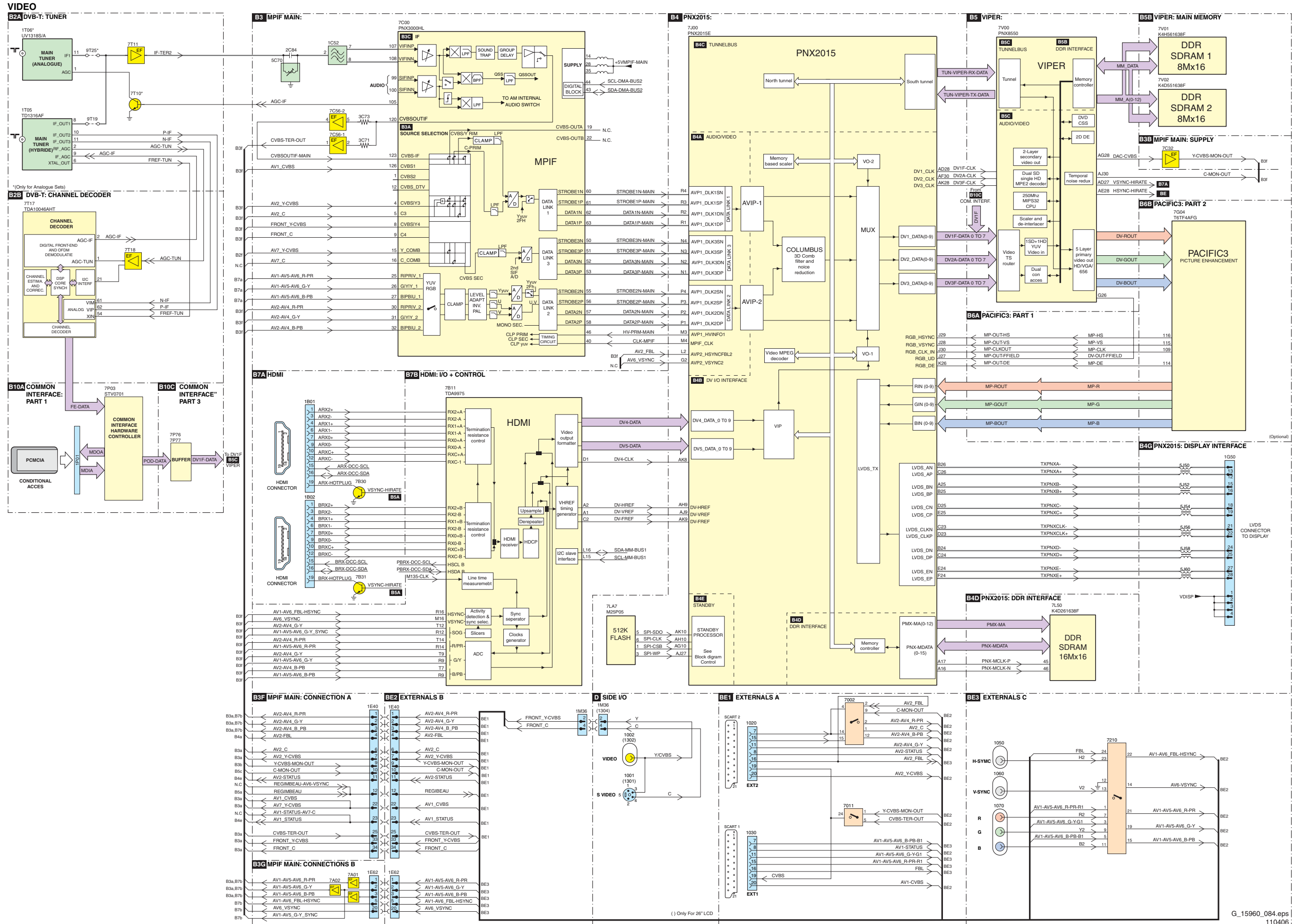


**AD1** DISPLAY SUPPLY: FILTER STANDBY



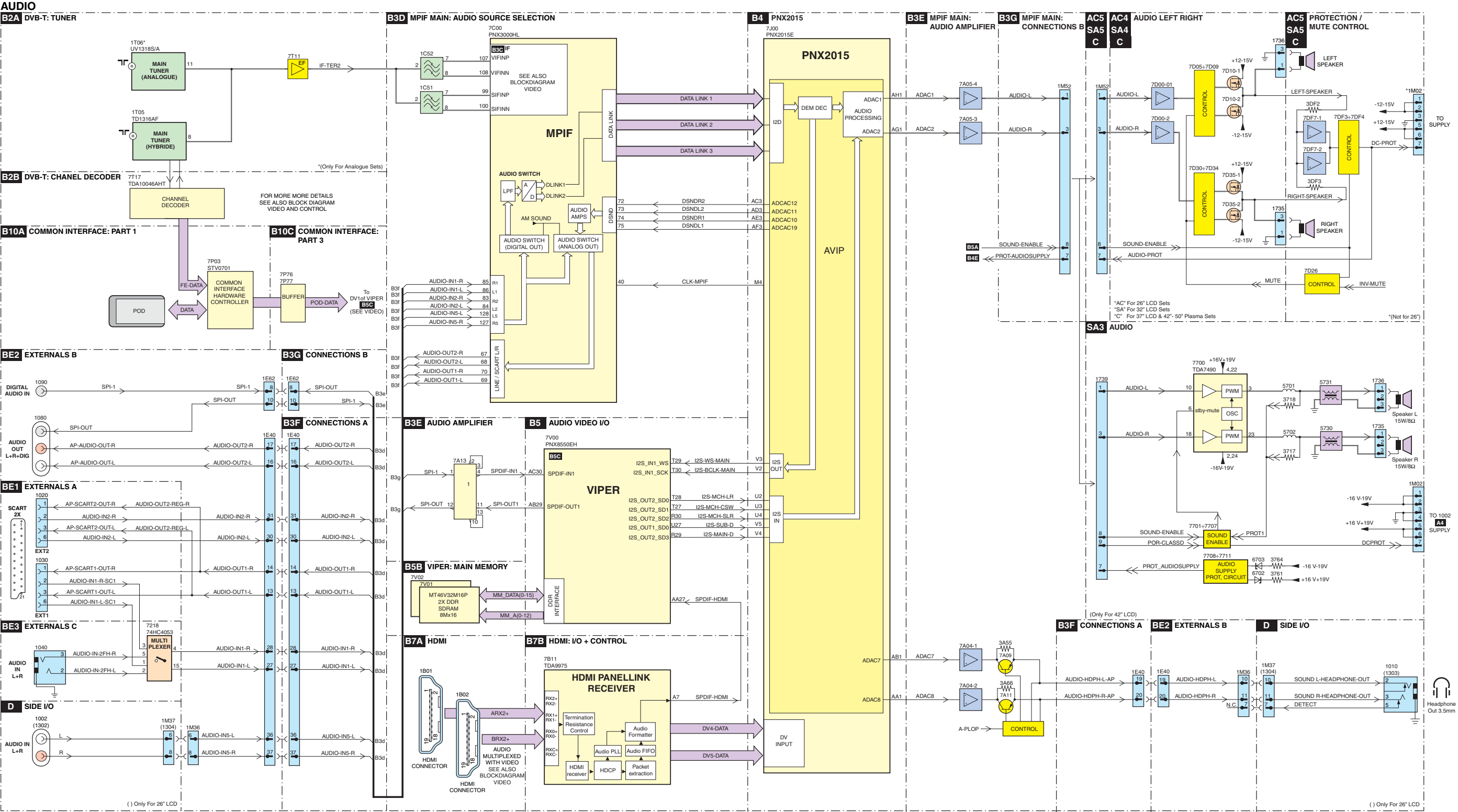


## Block Diagram Video





Block Diagram Audio





|      |    |      |    |
|------|----|------|----|
| I137 | A2 | IJ20 | C1 |
| I156 | A2 | IJ29 | C3 |
| I548 | E4 | IJ36 | C3 |
| I549 | E4 | IJ36 | C3 |
| I550 | E4 | IJ37 | C3 |
| I551 | G2 | IK95 | B3 |
| I552 | D2 | IK95 | B3 |
| I553 | C4 | IL03 | C3 |
| I554 | D4 | IL04 | B2 |
| I555 | C3 | IL04 | C2 |
| I556 | C3 | IL05 | C3 |
| I557 | B3 | IL05 | C3 |
| I558 | C3 | IL15 | C3 |
| I559 | B3 | IL15 | C3 |
| I560 | C3 | IL16 | C3 |
| I561 | B2 | IL16 | C3 |
| I562 | B3 | IL18 | B3 |
| I563 | B3 | IL18 | B3 |
| I564 | E3 | IL19 | B3 |
| I565 | E3 | IL34 | C2 |
| I566 | E3 | IL34 | C2 |
| I567 | F1 | ILB5 | C3 |
| I568 | F2 | ILB6 | C3 |
| I569 | F2 | ILB6 | C3 |
| I571 | E3 | ILB7 | B3 |
| I572 | E2 | ILB7 | B3 |
| I573 | E2 | ILB9 | C3 |
| I574 | E3 | ILB9 | C3 |
| I575 | E3 | ILC2 | C3 |
| I576 | E3 | ILC2 | C3 |
| I577 | C3 | ILN1 | B2 |
| I578 | C2 | ILN1 | B2 |
| I579 | C3 | ILN3 | C3 |
| I580 | E3 | ILN4 | B3 |
| I581 | F2 | ILN4 | B3 |
| I582 | A2 | ILN5 | C3 |
| IA04 | A2 | IO01 | D4 |
| IC47 | A2 | IO01 | D4 |
| IC47 | A2 | IO03 | D4 |
| IC51 | A2 | IO03 | D4 |
| IC51 | A2 | IO06 | D4 |
| IC81 | A2 | IO06 | D4 |
| IC82 | A2 | IO07 | D4 |
| IC86 | A2 | IO08 | C4 |
| IC86 | A2 | IO00 | E3 |
| IG01 | F2 | IO00 | E3 |
| IG02 | F2 | IO01 | E3 |
| IG04 | F1 | IO02 | E3 |
| IG04 | F1 | IO08 | E3 |
| IG06 | F1 | IO09 | D2 |
| IG06 | F1 | IO10 | E2 |
| IG07 | F1 | IQ27 | E3 |
| IG08 | F1 | IQ27 | E3 |
| IG08 | F1 | IQ35 | D2 |
| IG15 | F2 | IQ35 | D2 |
| IG15 | F2 | IQ50 | E2 |
| IG26 | F1 | IQ51 | E3 |
| IG26 | F1 | IU19 | G2 |
| IG28 | F2 | IU19 | G2 |
| IG28 | F2 | IU46 | G2 |
| IG35 | F1 | IU47 | G2 |
| IG35 | F1 | IU47 | G2 |
| IG38 | F2 | IU54 | G3 |
| IG38 | F2 | IU54 | G3 |
| IG39 | F2 | IZ03 | E4 |
| IG39 | F2 | IZ04 | E4 |
| IG41 | F2 | IZ04 | E4 |
| IH00 | E3 | IZ05 | E4 |
| IH01 | E3 | IZ05 | E4 |
| IH06 | E3 | IZ06 | E4 |
| IH07 | E3 | IZ08 | E4 |
| IH07 | E3 | IZ08 | E4 |
| IH08 | E3 | IZ12 | E4 |
| IH20 | E2 | IZ12 | E4 |
| IH20 | E2 | IZ13 | E4 |
| IH21 | E2 |      |    |
| IH21 | E2 |      |    |
| IJ00 | B3 |      |    |
| IJ01 | B3 |      |    |
| IJ02 | B3 |      |    |
| IJ02 | B3 |      |    |
| IJ03 | B3 |      |    |
| IJ04 | B3 |      |    |
| IJ04 | B3 |      |    |
| IJ05 | B2 |      |    |
| IJ06 | C3 |      |    |
| IJ07 | B3 |      |    |
| IJ10 | B1 |      |    |
| IJ10 | B1 |      |    |
| IJ11 | C3 |      |    |
| IJ11 | C3 |      |    |
| IJ12 | B1 |      |    |
| IJ12 | B1 |      |    |
| IJ13 | B1 |      |    |
| IJ13 | B1 |      |    |
| IJ20 | C1 |      |    |



## 4



## G

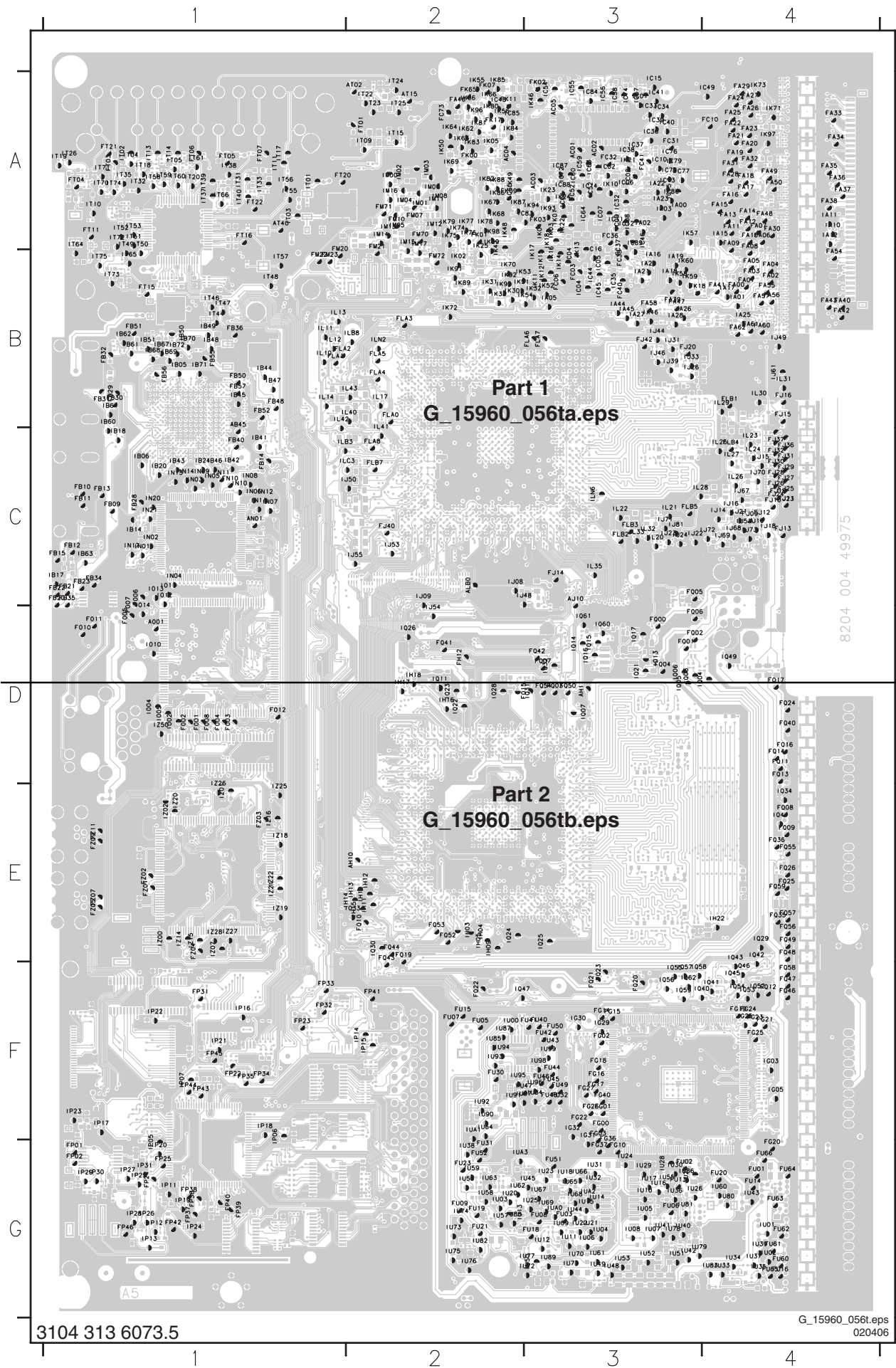


## Part 2

Z5



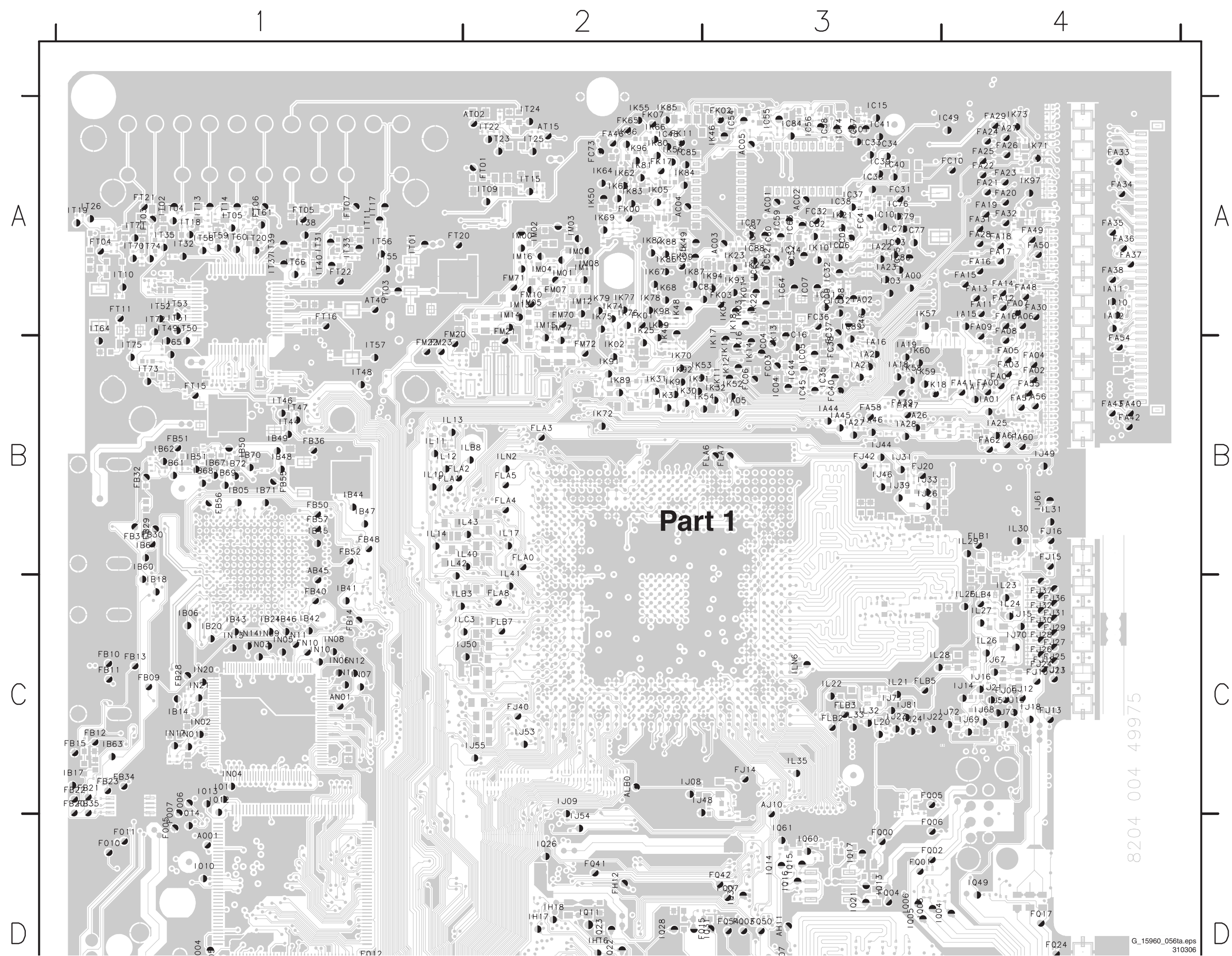
Test Point Overview SSB (Bottom Side)



|     |    |     |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |      |    |
|-----|----|-----|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|------|----|
| A2  | A2 | F80 | B4 | I93  | A3 | F181 | E4 | F284 | G4 | FB22 | C1 | FLB7 | C2 | FU01 | G4 | I157 | A2 | I260 | G4 | I363 | F1 | I466 | C4 | IA28 | B3 | IH13 | E2 | IK87 | A2 | IP29 | G1 | IU03 | G2 | IZ16 | E1   |    |
| A2  | A2 | F81 | A2 | I94  | A3 | F182 | E4 | F285 | F4 | FB23 | C1 | FM07 | A2 | FU02 | G3 | I158 | A3 | I261 | F2 | I364 | F1 | I467 | C4 | IA44 | B3 | IH14 | E1 | IK88 | A2 | IP30 | G1 | IU04 | G3 | IZ18 | E1   |    |
| A3  | A3 | F82 | E1 | I95  | A3 | F183 | D3 | F286 | F3 | FB28 | C1 | FM10 | A2 | FU03 | G3 | I159 | B1 | I262 | B1 | I365 | F2 | I468 | C4 | IA45 | B3 | IH15 | E2 | IK89 | B2 | IP31 | G1 | IU05 | G3 | IZ19 | E1   |    |
| A4  | A3 | F83 | E1 | I96  | B3 | F184 | D3 | F287 | F3 | FB29 | B1 | FM20 | A1 | FU05 | F2 | I160 | D1 | I263 | A1 | I366 | F2 | I469 | C4 | IA46 | B3 | IH16 | D2 | IK90 | B2 | IQ03 | D3 | IU06 | G3 | IZ20 | E1   |    |
| A5  | A3 | F84 | E1 | I97  | B3 | F185 | C3 | F288 | F3 | FB30 | B1 | FM21 | A2 | FU06 | G3 | I161 | E1 | I264 | B1 | I367 | F1 | I470 | C4 | IB05 | B1 | IH17 | D2 | IK91 | B2 | IQ04 | D3 | IU07 | G3 | IZ21 | E1   |    |
| A6  | C2 | F85 | E1 | I98  | A3 | F186 | D3 | F289 | F3 | FB31 | B1 | FM22 | B1 | FU07 | F2 | I162 | E1 | I265 | A1 | I368 | F1 | I471 | C2 | IB06 | C1 | IH18 | D2 | IK92 | B2 | IQ05 | D3 | IU08 | G3 | IZ22 | E1   |    |
| A7  | A1 | F86 | A2 | I99  | A3 | F187 | D3 | F290 | F3 | FB32 | B1 | FM23 | B1 | FU08 | G3 | I163 | E1 | I266 | A1 | I369 | G1 | I472 | C2 | IB14 | C1 | IH22 | E4 | IK93 | A3 | IQ06 | D3 | IU09 | G3 | IZ25 | E1   |    |
| A8  | A2 | F87 | B3 | AB45 | B1 | F188 | D3 | F291 | G3 | FB34 | C1 | FM70 | A2 | FU09 | G2 | I164 | E1 | I267 | A1 | I370 | D1 | I473 | E4 | IB17 | C1 | IJ08 | C2 | IK94 | A3 | IQ07 | D3 | IU10 | G3 | IZ26 | D1   |    |
| A9  | A2 | F88 | A3 | AC01 | A3 | F189 | D3 | F292 | G3 | FB35 | C1 | FM71 | A2 | FU13 | G3 | I165 | E1 | I268 | A1 | I371 | C1 | I474 | D2 | IB18 | C1 | IJ09 | C2 | IK96 | A2 | IQ11 | D2 | IU11 | G3 | IZ27 | E1   |    |
| F1  | B3 | F89 | E1 | AC02 | A3 | F190 | D3 | F293 | F3 | FB36 | B1 | FM72 | B2 | FU14 | G4 | I166 | E1 | I269 | B1 | I372 | C1 | I475 | D2 | IB20 | C1 | IJ14 | C4 | IK97 | A4 | IQ13 | D3 | IU12 | G3 | IZ28 | E1   |    |
| F2  | A2 | F90 | E1 | AC03 | A3 | F191 | G1 | F294 | F3 | FB40 | C1 | FN10 | C1 | FU15 | F2 | I167 | E1 | I270 | A1 | I373 | C1 | I476 | D2 | IB24 | C1 | IJ15 | C4 | IK98 | A2 | IQ14 | D3 | IU13 | G2 |      | I250 | D1 |
| F3  | A2 | F91 | E1 | AC04 | A2 | F192 | F1 | F295 | F3 | FB48 | B1 | FN11 | C1 | FU16 | G4 | I168 | E1 | I271 | A1 | I374 | D1 | I477 | E2 | IB41 | C1 | IJ16 | C4 | IK99 | A2 | IQ15 | D3 | IU14 | G3 |      |      |    |
| F4  | A2 | F92 | E1 | AC05 | A3 | F193 | F1 | F296 | B1 | FB50 | B1 | FO01 | D1 | FU18 | G3 | I169 | G2 | I272 | A1 | I375 | D1 | I478 | E2 | IB42 | C1 | IJ18 | C4 | IL10 | B1 | IQ16 | D3 | IU15 | G3 |      |      |    |
| F5  | A2 | F93 | G4 | AH10 | E2 | F194 | F1 | F297 | B1 | FB51 | B1 | FO02 | D1 | FU19 | G2 | I170 | G3 | I273 | A1 | I376 | D1 | I479 | E2 | IB43 | C1 | IJ19 | C4 | IL11 | B1 | IQ17 | D3 | IU16 | G3 |      |      |    |
| F6  | A3 | F94 | G4 | AH11 | D3 | F195 | G1 | F298 | B1 | FB52 | B1 | FO03 | D1 | FU20 | G4 | I171 | F2 | I274 | B1 | I377 | D1 | I480 | E2 | IB44 | B1 | IJ21 | C4 | IL12 | B1 | IQ21 | D3 | IU17 | G3 |      |      |    |
| F7  | A3 | F95 | G4 | AJ10 | C3 | F196 | F2 | F299 | B1 | FB55 | B1 | FO04 | D1 | FU21 | G2 | I172 | G3 | I275 | A1 | I378 | C1 | I481 | E2 | IB45 | B1 | IJ22 | C3 | IL13 | B1 | IQ22 | D2 | IU18 | G3 |      |      |    |
| F8  | A2 | F96 | G4 | ALB0 | C2 | F197 | G1 | F300 | B1 | FB56 | B1 | FO05 | D1 | FU23 | G2 | I173 | F3 | I276 | A1 | I379 | C1 | I482 | E2 | IB46 | C1 | IJ23 | C3 | IL14 | B1 | IQ23 | D2 | IU20 | G2 |      |      |    |
| F9  | A2 | F97 | G4 | AN01 | C1 | F198 | G1 | F301 | B1 | FB57 | B1 | FO06 | C1 | FU30 | F2 | I174 | F3 | I277 | A1 | I380 | C1 | I483 | E2 | IB47 | B1 | IJ24 | C3 | IL17 | B2 | IQ24 | E2 | IU21 | G3 |      |      |    |
| I1  | B3 | F98 | G4 | AO01 | D1 | F199 | G1 | F302 | B1 | FC02 | A3 | FO07 | C1 | FU31 | G2 | I175 | F2 | I278 | A1 | I381 | C1 | I484 | E2 | IB48 | B1 | IJ26 | B3 | IL20 | C3 | IQ25 | E3 | IU22 | G3 |      |      |    |
| I2  | A3 | F99 | G4 | AT02 | A2 | F200 | G1 | F303 | C1 | FC03 | B3 | FO08 | D1 | FU32 | F3 | I176 | F3 | I279 | B1 | I382 | C1 | I485 | E2 | IB49 | B1 | IJ31 | B3 | IL21 | C3 | IQ26 | D2 | IU23 | G3 |      |      |    |
| I3  | A3 | I10 | B2 | AT15 | A2 | F201 | G1 | F304 | B1 | FC04 | B3 | FO10 | D1 | FU40 | F3 | I177 | F2 | I280 | B1 | I383 | C1 | I486 | E2 | IB50 | B1 | IJ33 | B3 | IL22 | C3 | IQ28 | D2 | IU24 | G3 |      |      |    |
| I4  | A3 | I11 | B2 | AT40 | A1 | F202 | F1 | F305 | C1 | FC06 | B3 | FO11 | D1 | FU41 | F3 | I178 | F2 | I281 | B1 | I384 | C1 | I487 | F3 | IB51 | B1 | IJ39 | B3 | IL23 | C4 | IQ29 | E4 | IU25 | G3 |      |      |    |
| I5  | A3 | I12 | B2 | F100 | G2 | F203 | F1 | F306 | B1 | FC10 | A4 | FO12 | D1 | FU42 | F3 | I179 | F2 | I282 | B1 | I385 | C1 | I488 | G3 | IB60 | B1 | IJ44 | B3 | IL24 | C4 | IQ30 | E2 | IU26 | G3 |      |      |    |
| I6  | A3 | I13 | B2 | F101 | G3 | F204 | F1 | F307 | B1 | FC31 | A3 | FP01 | G1 | FU43 | F3 | I180 | F2 | I283 | B1 | I386 | C1 | I489 | F3 | IB61 | B1 | IJ46 | B3 | IL25 | C4 | IQ31 | D3 | IU27 | G3 |      |      |    |
| I7  | A3 | I14 | A2 | F102 | F3 | F205 | F1 | F308 | B1 | FC32 | A3 | FP02 | G1 | FU44 | F3 | I181 | F2 | I284 | B1 | I387 | C1 | I490 | F3 | IB62 | B1 | IJ48 | C2 | IL26 | C4 | IQ32 | D3 | IU28 | G3 |      |      |    |
| I8  | A3 | I15 | A2 | F103 | F3 | F206 | F1 | F309 | B1 | FC36 | A3 | FP22 | F1 | FU45 | F3 | I182 | F2 | I285 | A1 | I388 | C1 | I491 | F4 | IB63 | C1 | IJ49 | B4 | IL27 | C4 | IQ33 | E2 | IU29 | G3 |      |      |    |
| I9  | A3 | I16 | A2 | F104 | F3 | F207 | G1 | F310 | C1 | FC37 | A3 | FP23 | F1 | FU46 | F3 | I183 | G3 | I286 | A1 | I389 | C1 | I492 | F4 | IB64 | B1 | IJ50 | C2 | IL28 | C3 | IQ34 | E4 | IU30 | G3 |      |      |    |
| I10 | D1 | I17 | A2 | F105 | F2 | F208 | G1 | F311 | C1 | FC38 | B3 | FP24 | G1 | FU47 | F3 | I184 | G2 | I287 | A1 | I390 | C1 | I493 | F4 | IB67 | B1 | IJ51 | C4 | IL29 | B4 | IQ40 | F3 | IU31 | G3 |      |      |    |
| A11 | C1 | I18 | A2 | F106 | F3 | F209 | F1 | F312 | C1 | FC40 | B3 | FP25 | G1 | FU48 | F3 | I185 | F2 | I288 | A1 | I391 | C1 | I494 | A4 | IB68 | B1 | IJ53 | C2 | IL30 | B4 | IQ41 | F4 | IU32 | G3 |      |      |    |
| A12 | C3 | I19 | A2 | F107 | F3 | F210 | F1 | F313 | C1 | FC41 | A3 | FP31 | F1 | FU49 | F3 | I186 | G3 | I289 | A1 | I392 | C1 | I495 | A2 | IB69 | B1 | IJ54 | D2 | IL31 | B4 | IQ42 | E4 | IU33 | G4 |      |      |    |
| A13 | D3 | I20 | A2 | F108 | F3 | F211 | G1 | F314 | C1 | FC52 | A3 | FP32 | F1 | FU50 | F3 | I187 | F2 | I290 | A1 | I393 | C1 | I496 | B1 | IB70 | B1 | IJ55 | D2 | IL32 | C3 | IQ43 | E4 | IU34 | G4 |      |      |    |
| A14 | E2 | I21 | A2 | F109 | F3 | F212 | G1 | F315 | C1 | FC73 | A2 | FP33 | F1 | FU51 | G3 | I188 | F3 | I291 | A1 | I394 | C1 | I497 | B1 | IB71 | B1 | IJ61 | B4 | IL33 | C3 | IQ44 | E4 | IU35 | G4 |      |      |    |
| A15 | C1 | I22 | A2 | F110 | F3 | F213 | D1 | F316 | C1 | FG00 | F3 | FP34 | F1 | FU52 | G2 | I189 | G4 | I292 | A1 | I395 | B2 | I498 | B1 | IB72 | B1 | IJ67 | C4 | IL35 | C3 | IQ45 | F4 | IU36 | G3 |      |      |    |
| F10 | A3 | I23 | A2 | F111 | F3 | F214 | D1 | F317 | C1 | FG01 | F3 | FP35 | F1 | FU60 | G4 | I190 | G3 | I293 | A1 | I396 | A2 | I499 | B1 | IC01 | A3 | IJ68 | C4 | IL40 | B2 | IQ46 | F4 | IU37 | G4 |      |      |    |
| F11 | A3 | I24 | A2 | F112 | F3 | F215 | D1 | F318 | C1 | FG02 | F3 | FP36 | G1 | FU61 | G4 | I191 | G2 | I294 | A2 | I397 | B2 | I500 | B1 | IC02 | A3 | IJ69 | C4 | IL41 | B2 | IQ47 | F2 | IU38 | G2 |      |      |    |
| F12 | C1 | I25 | A2 | F113 | F3 | F216 | D1 | F319 | C1 | FG03 | F3 | FP37 | G1 | FU62 | G4 | I192 | G2 | I295 | A2 | I398 | A2 | I501 | B1 | IC04 | B3 | IJ70 | C4 | IL42 | B1 | IQ49 | D4 | IU39 | G4 |      |      |    |
| F13 | B3 | I26 | A2 | F114 | G2 | F217 | C1 | F320 | C1 | FG10 | G3 | FP38 | G1 | FU63 | G4 | I193 | G2 | I296 | A2 | I399 | A2 | I502 | B1 | IC05 | B3 | IJ71 | C3 | IL43 | B2 | IQ52 | F4 | IU40 | G3 |      |      |    |
| F14 | A3 | I27 | B2 | F115 | F2 | F218 | C1 | FA00 | B4 | FG14 | F3 | FP39 | G1 | FU64 | G4 | I194 | G2 | I297 | A2 | I400 | A2 | I503 | C1 | IC06 | A3 | IJ72 | C4 | ILB3 | C1 | IQ53 | F4 | IU41 | G3 |      |      |    |
| F15 | A3 | I28 | A2 | F116 | G2 | F219 | D1 | FA01 | B4 | FG15 | F3 | FP40 | G1 | FU65 | G4 | I195 | G3 | I298 | A1 | I401 | A2 | I504 | B1 | IC07 | A3 | IJ73 | C4 | ILB8 | B2 | IQ54 | F4 | IU42 | G3 |      |      |    |
| F16 | A3 | I29 | A1 | F117 | G2 | F220 | D1 | FA02 | B4 | FG16 | F3 | FP41 | F2 | FU66 | G4 | I196 | G3 | I299 | A1 | I402 | A2 | I505 | B1 | IC08 | A3 | IJ81 | C3 | ILC3 | C2 | IQ55 | F3 | IU43 | G4 |      |      |    |
| F17 | A3 | I30 | B2 | F118 | G4 | F221 | D1 | FA03 | B4 | FG17 | F3 | FP42 | G1 | FZ01 | E1 | I197 | G3 | I300 | A1 | I403 | A2 | I506 | C1 | IC09 | A3 | IK01 | A3 | ILN2 | B2 | IQ56 | F3 | IU44 | G3 |      |      |    |
| F18 | B3 | I31 | A1 | F119 | G2 | F222 | D1 | FA04 | B4 | FG18 | F3 | FP43 | F1 | FZ02 | E1 | I198 | G3 | I301 | A1 | I404 | A2 | I507 | B1 | IC10 | A3 | IK02 | B2 | ILN6 | C3 | IQ57 | F3 | IU45 | G3 |      |      |    |
| F19 | B3 | I32 | B2 | F120 | G3 | F223 | D1 | FA05 | B4 | FG19 |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |      |    |

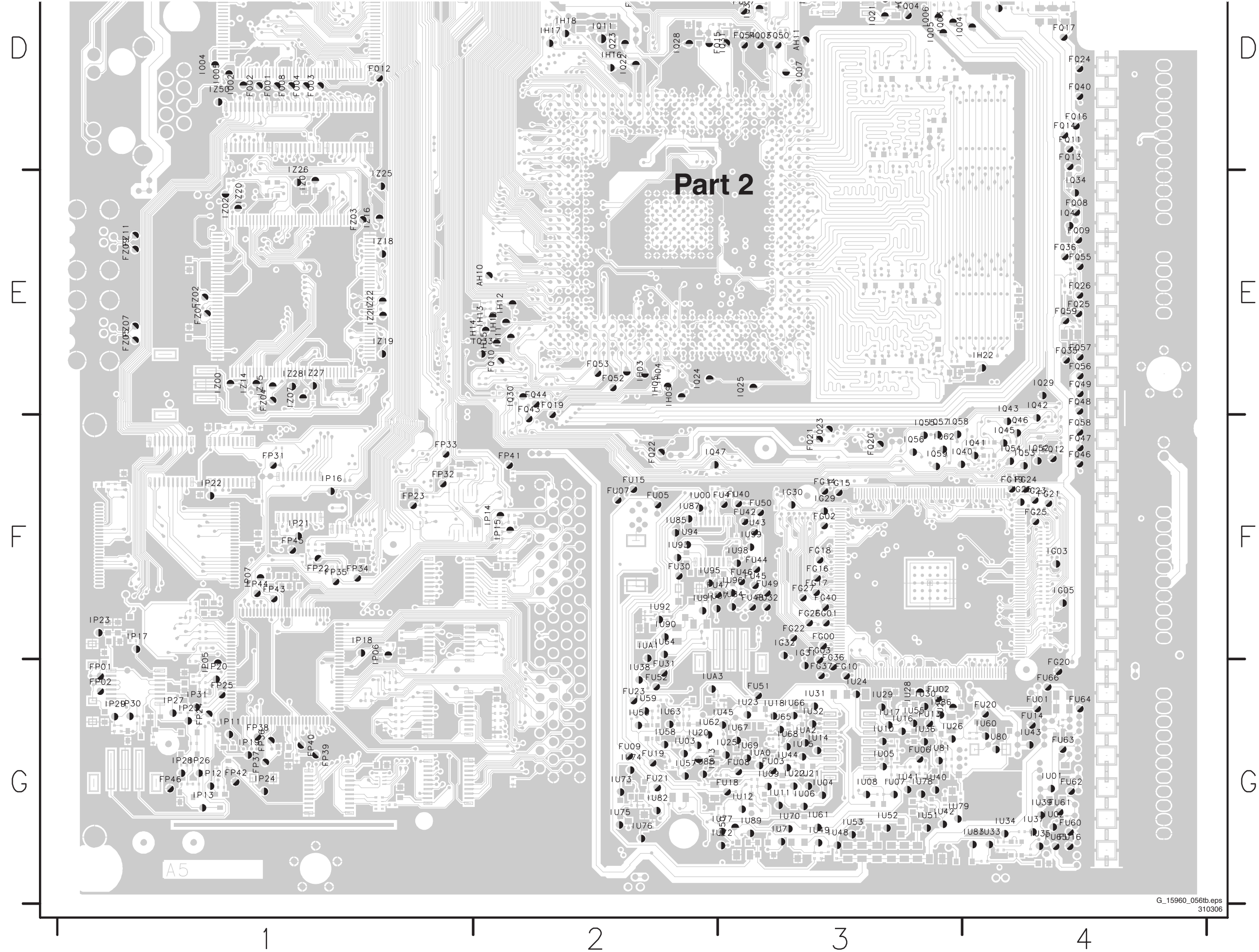


Test Point Overview SSB Part 1 (Bottom Side)



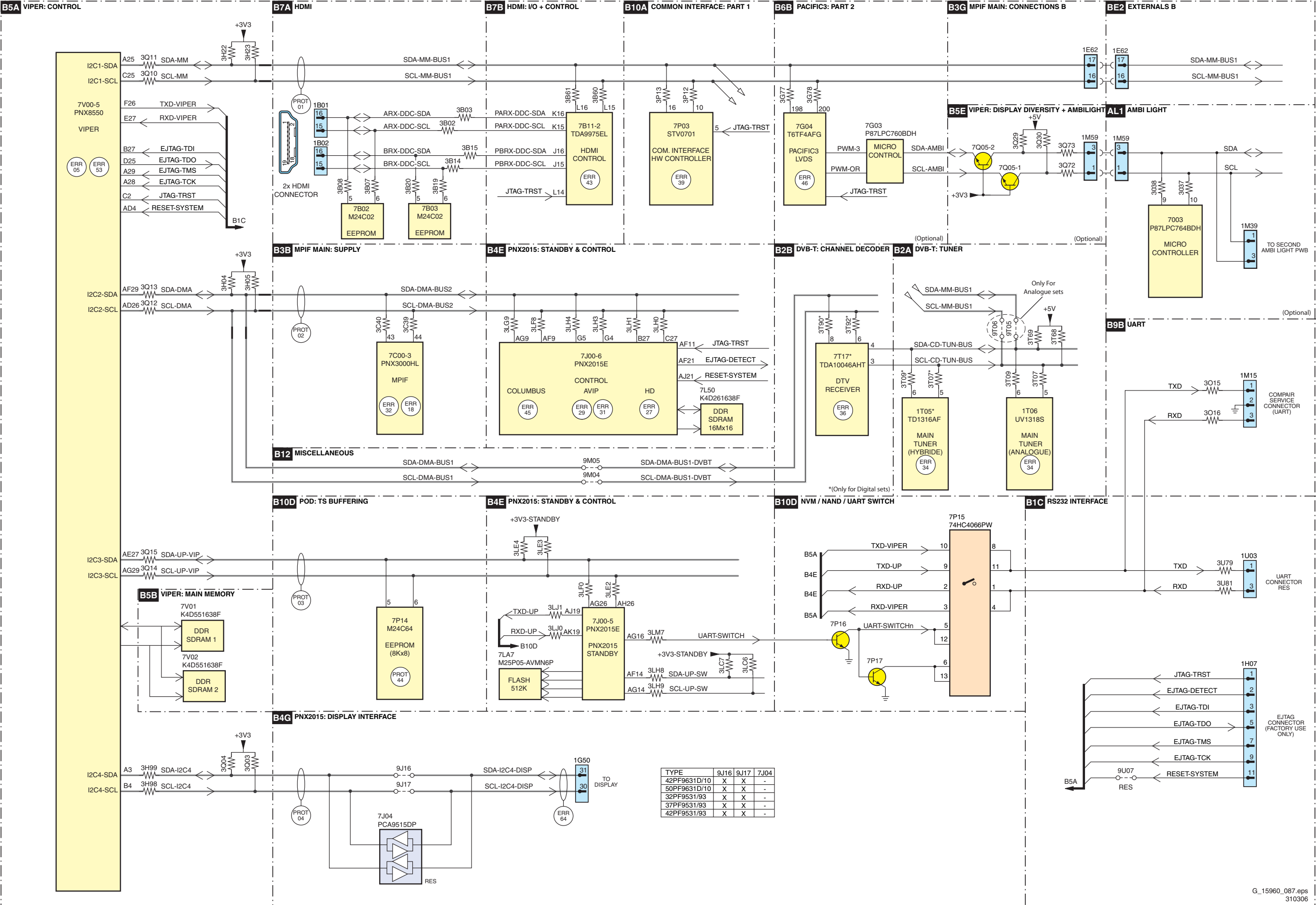


Test Point Overview SSB Part 2 (Bottom Side)



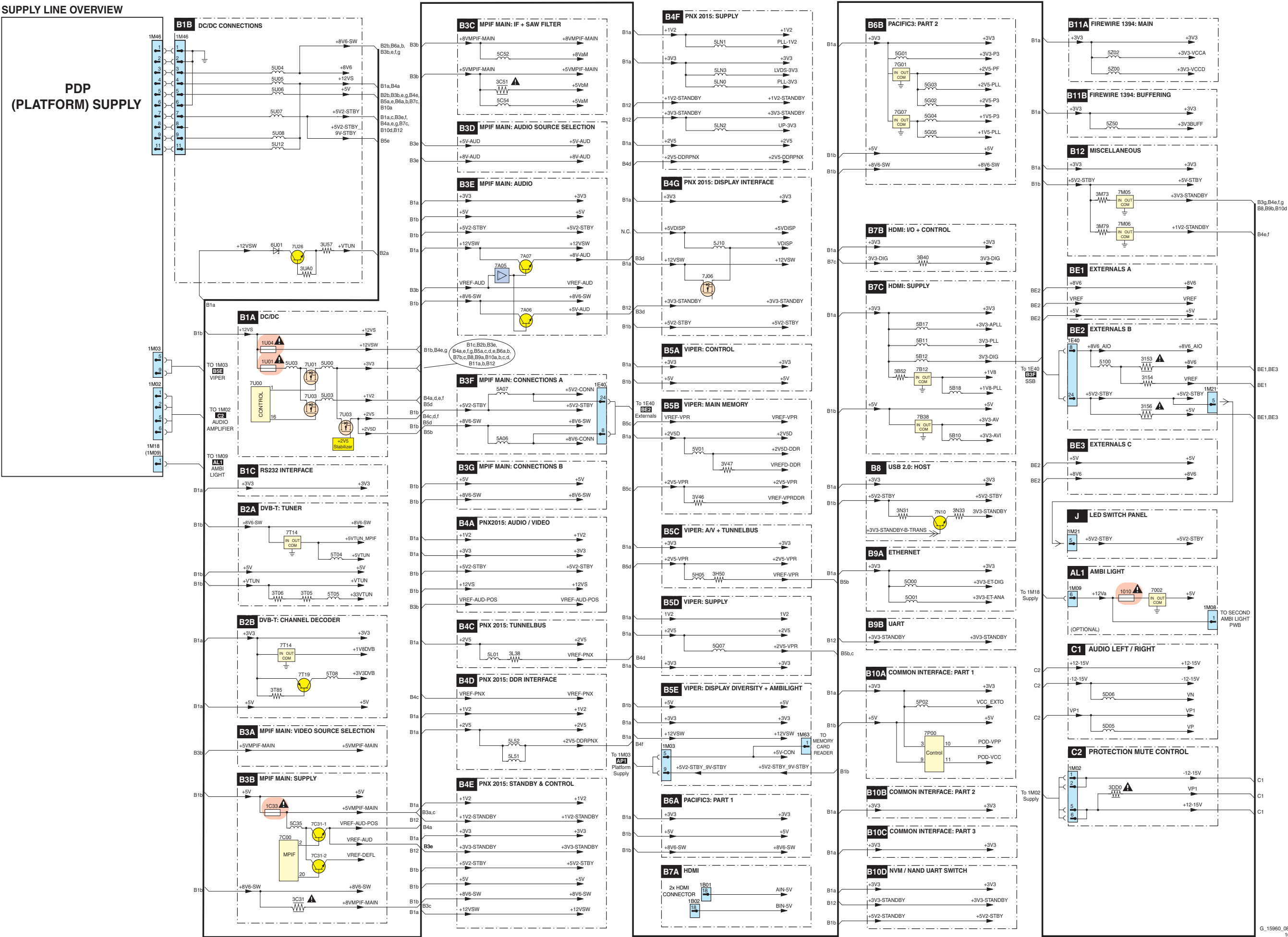
I2C IC's Overview

PC



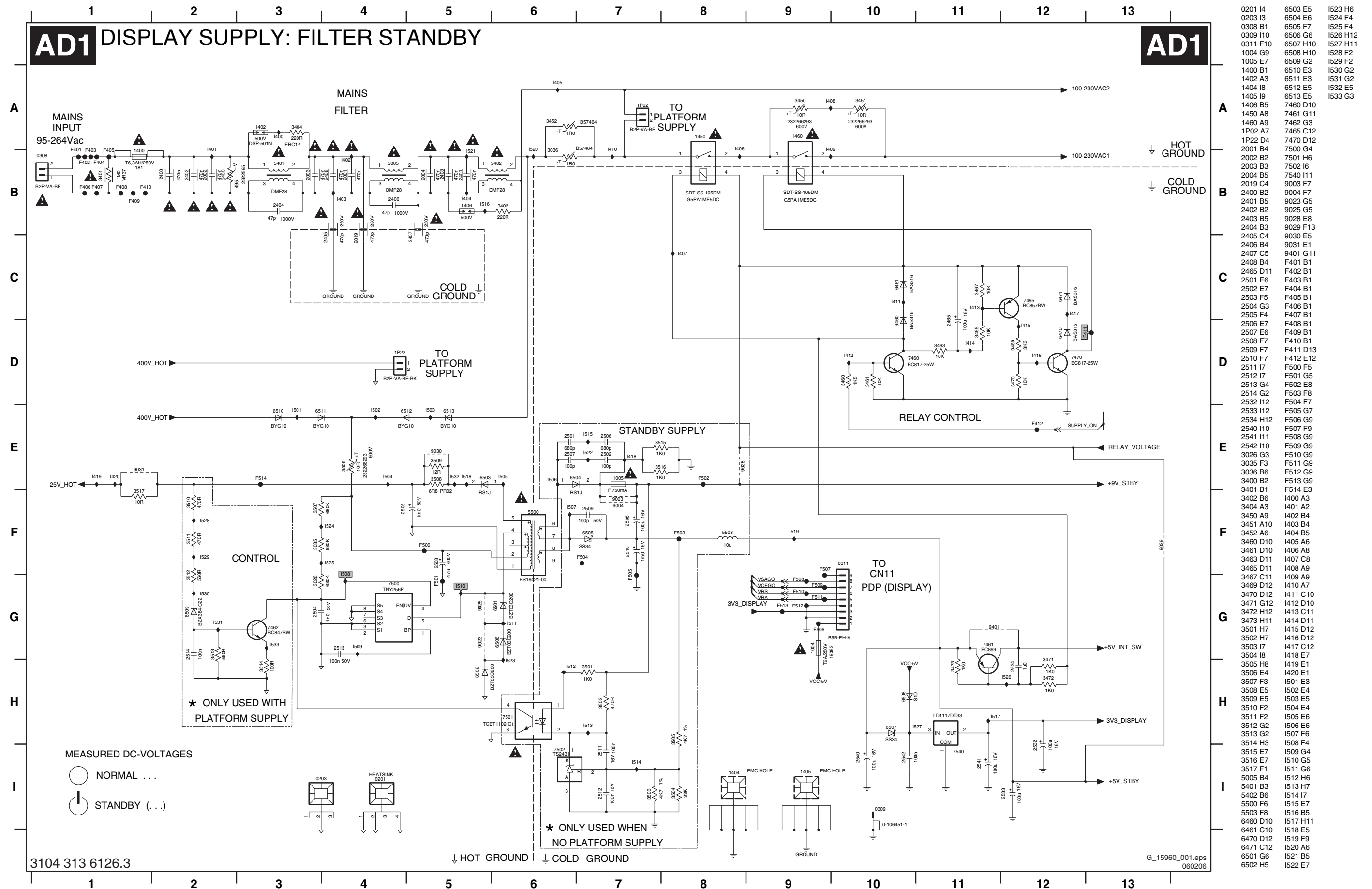
Supply Lines Overview

SUPPLY LINE OVERVIEW

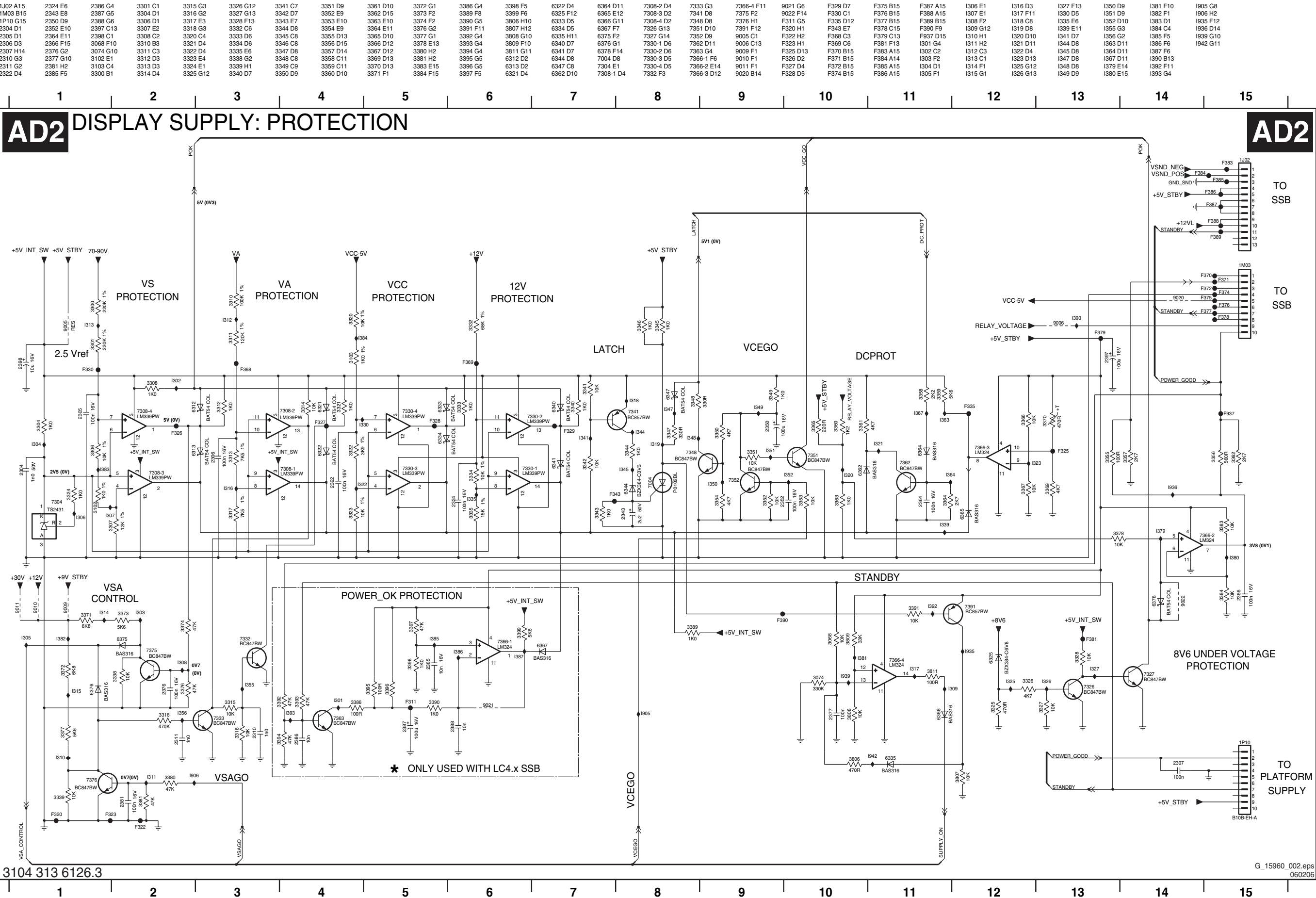




### Display Supply FHP: Filter Standby



Display Supply FHP: Protection



## DISPLAY SUPPLY: PRECONDITIONER

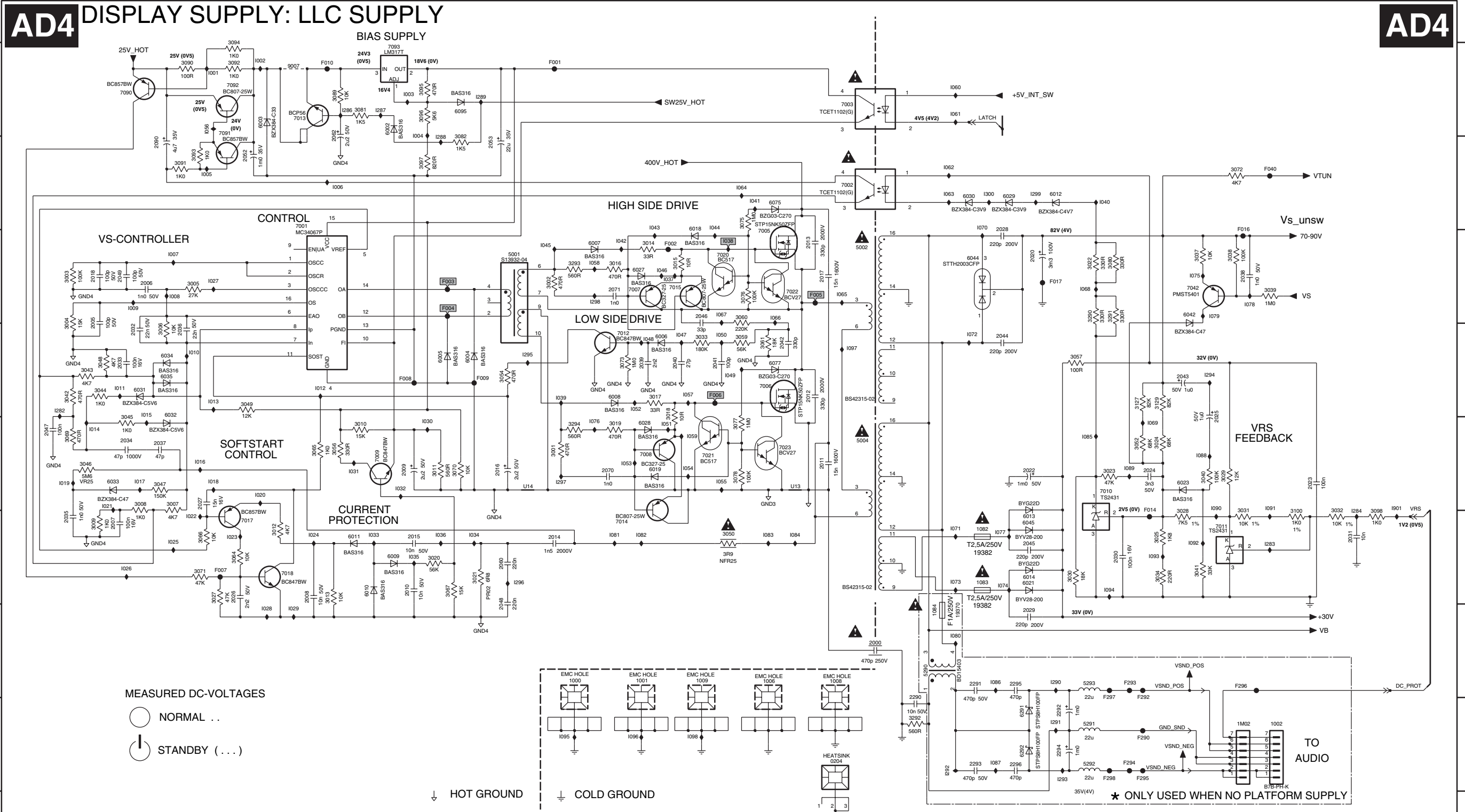


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| 2600 B3  | 3682 G13 | I635 C7  |
| 2601 B2  | 3683 G12 | I636 H12 |
| 2602 C6  | 3684 G12 | I637 F3  |
| 2603 C3  | 3685 H12 | I638 E10 |
| 2604 C2  | 3686 C7  | I639 E8  |
| 2605 C3  | 3690 I7  | I640 E11 |
| 2608 H8  | 3691 I7  | I641 E8  |
| 2610 B7  | 3692 I7  | I642 E10 |
| 2611 B8  | 3693 I6  | I643 G7  |
| 2612 B5  | 3694 F13 | I644 G8  |
| 2613 C6  | 3695 G13 | I645 G8  |
| 2614 C6  | 3696 H13 | I646 G8  |
| 2616 C9  | 3999 A10 | I647 F3  |
| 2617 C9  | 5600 A5  | I648 H12 |
| 2640 H8  | 5601 B8  | I649 G6  |
| 2642 H11 | 5612 B7  | I650 E3  |
| 2651 H3  | 5660 E10 | I651 E3  |
| 2653 H5  | 6600 B2  | I652 G5  |
| 2654 H1  | 6601 F3  | I653 F5  |
| 2655 H3  | 6602 G6  | I654 C5  |
| 2656 H2  | 6605 A3  | I655 C7  |
| 2660 E10 | 6606 A2  | I656 E8  |
| 2661 F8  | 6608 B6  | I657 G12 |
| 2662 F11 | 6609 C7  | I658 H12 |
| 2663 E6  | 6611 B8  | I659 F13 |
| 2664 F7  | 6640 G11 | I660 F13 |
| 2665 H8  | 6641 H10 | I661 G13 |
| 2666 H4  | 6642 H11 | I662 H12 |
| 2670 I12 | 6643 H9  | I663 G1  |
| 2671 H12 | 6651 H5  | I664 I6  |
| 2672 H8  | 6652 H4  | I665 I7  |
| 2673 G12 | 6653 H5  | I666 I6  |
| 2674 G12 | 6654 H1  | I667 I7  |
| 2675 G11 | 6660 F7  | I668 I7  |
| 2676 G12 | 6661 E7  | I669 D13 |
| 2677 C7  | 6663 E10 | I670 E13 |
| 2690 I7  | 6665 E11 | I671 C13 |
| 2691 I7  | 6666 H7  | I672 D13 |
| 3104 H12 | 7601 G8  |          |
| 3601 D2  | 7602 F8  |          |
| 3602 D2  | 7608 C6  |          |
| 3603 E3  | 7609 C5  |          |
| 3604 E3  | 7610 B7  |          |
| 3605 F3  | 7640 H10 |          |
| 3606 C5  | 7641 G10 |          |
| 3607 F3  | 7650 G6  |          |
| 3608 C5  | 7654 H2  |          |
| 3609 E3  | 7655 I7  |          |
| 3610 C6  | 7656 I6  |          |
| 3611 C6  | 7661 D8  |          |
| 3612 H4  | F600 B10 |          |
| 3613 G8  | F601 B3  |          |
| 3614 C7  | F602 D2  |          |
| 3615 C8  | F604 D10 |          |
| 3616 G9  | F605 D10 |          |
| 3617 G7  | F606 I10 |          |
| 3618 G7  | F608 D11 |          |
| 3619 F8  | F609 F9  |          |
| 3620 C8  | F610 G9  |          |
| 3621 C8  | F996 A10 |          |
| 3622 C9  | F997 A10 |          |
| 3623 G6  | F998 A11 |          |
| 3639 H8  | F999 A11 |          |
| 3640 H9  | I601 C6  |          |
| 3641 H9  | I602 D2  |          |
| 3642 G11 | I603 B4  |          |
| 3643 F11 | I604 B7  |          |
| 3645 E13 | I605 B5  |          |
| 3646 D13 | I606 C6  |          |
| 3647 C13 | I607 C6  |          |
| 3648 C13 | I608 C7  |          |
| 3651 H3  | I609 C8  |          |
| 3652 G5  | I610 E5  |          |
| 3654 G1  | I611 E6  |          |
| 3655 H1  | I612 E7  |          |
| 3656 H1  | I613 E7  |          |
| 3659 G5  | I614 B8  |          |
| 3660 F5  | I615 H1  |          |
| 3661 F5  | I616 G5  |          |
| 3662 E6  | I617 G2  |          |
| 3663 E6  | I618 H4  |          |
| 3664 H12 | I619 H4  |          |
| 3665 F9  | I620 H5  |          |
| 3666 H4  | I621 G4  |          |
| 3667 I6  | I622 G7  |          |
| 3668 F10 | I623 H8  |          |
| 3669 I12 | I624 H9  |          |
| 3671 I12 | I625 G10 |          |
| 3673 F12 | I626 H10 |          |
| 3674 E13 | I627 F12 |          |
| 3675 E8  | I628 G12 |          |
| 3676 F8  | I629 H11 |          |
| 3677 F8  | I630 C8  |          |
| 3678 F8  | I631 E5  |          |
| 3679 E13 | I632 E6  |          |
| 3680 F13 | I633 H1  |          |
| 3681 G13 | I634 B6  |          |



Display Supply FHP: LLC Supply

|          |          |          |          |          |          |          |         |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |         |         |         |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
| U13 E9   | 1084 G10 | 2013 C9  | 2026 F3  | 2037 E2  | 2048 F6  | 2292 H12 | 3007 E2 | 3018 D7  | 3030 F12 | 3043 D1  | 3057 D12 | 3072 B13 | 3091 B2  | 3290 C12 | 5293 G12 | 6012 B11 | 6031 D2  | 6291 H11 | 7011 F13 | 7042 C13 | F006 D8  | F293 G12 | I006 B4 | I017 E2 | I028 G3 | I039 D6  | I050 D8  | I061 A10 | I072 D11 | I083 F8  | I094 F12 | I289 A5  | I300 B11 |
| U14 E6   | 1M02 H14 | 2014 F6  | 2027 E2  | 2038 C14 | 2049 C2  | 2293 H11 | 3008 E2 | 3019 E7  | 3031 F13 | 3044 D1  | 3059 D8  | 3073 D7  | 3092 A3  | 3291 C12 | 6002 A4  | 6013 F11 | 6032 D2  | 6292 H11 | 7012 D7  | 7090 A2  | F007 F3  | F294 H12 | I007 C2 | I018 E2 | I029 G3 | I040 B12 | I051 E7  | I062 B10 | I073 F10 | I084 F9  | I095 H6  | I290 G11 | I901 E15 |
| 0204 H9  | 2000 G10 | 2015 F5  | 2028 C11 | 2039 D7  | 2052 B3  | 2294 H12 | 3009 F1 | 3020 F5  | 3032 F14 | 3045 E2  | 3060 C8  | 3075 B8  | 3093 B2  | 3292 H10 | 6003 A3  | 6014 F11 | 6033 E1  | 7001 B3  | 7013 A3  | 7091 A3  | F008 D5  | F295 H12 | I008 C2 | I019 E1 | I030 E5 | I041 B8  | I052 D7  | I063 B10 | I074 F11 | I085 E12 | I096 H7  | I291 H11 |          |
| 1000 G6  | 2005 C1  | 2016 E6  | 2029 G11 | 2040 D7  | 2053 B5  | 2295 G11 | 3010 E4 | 3021 F5  | 3033 D8  | 3046 E1  | 3061 D8  | 3076 C8  | 3094 A3  | 3293 C6  | 6004 D5  | 6018 C8  | 6034 D2  | 7002 B9  | 7014 F7  | 7092 A3  | F009 D5  | F296 G13 | I009 C2 | I020 E3 | I031 E4 | I042 C7  | I053 E7  | I064 B8  | I075 C13 | I086 G11 | I097 D9  | I292 H10 |          |
| 1001 G7  | 2006 C2  | 2017 C9  | 2030 F12 | 2041 D8  | 2060 F6  | 2296 H11 | 3011 E5 | 3022 C12 | 3034 F13 | 3047 E2  | 3065 F4  | 3077 E8  | 3095 A5  | 3294 C6  | 6005 D5  | 6019 E7  | 6035 D2  | 7003 A9  | 7015 C7  | 7093 A4  | F010 A4  | F297 H12 | I010 D2 | I021 E1 | I032 E4 | I043 B7  | I054 E8  | I065 C9  | I076 E7  | I087 H11 | I098 H8  | I293 H12 |          |
| 1002 H14 | 2007 F1  | 2018 C1  | 2031 F15 | 2042 D9  | 2062 A4  | 3001 E6  | 3012 F3 | 3023 E12 | 3037 C13 | 3048 D1  | 3066 F2  | 3080 C12 | 3097 B5  | 5002 C9  | 6007 C7  | 6023 E13 | 6044 C11 | 7005 C8  | 7017 F3  | 9007 A3  | F014 F12 | F298 H12 | I011 D1 | I022 F2 | I033 F4 | I044 B8  | I055 E8  | I066 C8  | I077 F11 | I088 E13 | I282 D1  | I294 D13 |          |
| 1006 G8  | 2008 F4  | 2020 C11 | 2032 D2  | 2043 D13 | 2070 E7  | 3002 C6  | 3013 F4 | 3024 E13 | 3038 C13 | 3049 D3  | 3067 F5  | 3081 A4  | 3098 F15 | 5004 E9  | 6008 D7  | 6027 C7  | 6045 F11 | 7007 C7  | 7020 C8  | F001 A6  | F016 C13 | I001 A2  | I012 D4 | I023 F3 | I034 F5 | I045 C6  | I056 A2  | I067 C8  | I078 C14 | I089 E12 | I283 F14 | I295 D6  |          |
| 1008 G9  | 2009 E5  | 2022 E11 | 2033 D2  | 2044 D11 | 2071 C7  | 3003 C1  | 3014 C7 | 3025 F13 | 3039 C14 | 3050 F8  | 3067 F5  | 3082 B5  | 3100 F14 | 5290 G10 | 6009 F4  | 6028 E7  | 6075 B8  | 7008 E7  | 7021 E8  | F002 C7  | F040 B14 | I002 A3  | I013 D2 | I024 F4 | I035 F5 | I046 C7  | I057 D8  | I068 C12 | I079 C13 | I090 F13 | I284 F15 | I296 F6  |          |
| 1009 G8  | 2010 F5  | 2023 E14 | 2034 E2  | 2045 F11 | 2090 B2  | 3004 D1  | 3015 C7 | 3027 F13 | 3040 E13 | 3052 E12 | 3069 E1  | 3082 B5  | 3100 F14 | 5290 G10 | 6009 F4  | 6028 E7  | 6075 B8  | 7008 E7  | 7021 E8  | F003 C5  | F040 B14 | I003 A5  | I014 E1 | I025 F2 | I036 F5 | I047 D7  | I058 C7  | I069 E13 | I080 G10 | I091 E14 | I286 A4  | I297 E6  |          |
| 1082 F11 | 2011 E9  | 2024 E12 | 2035 F1  | 2046 C8  | 2290 H10 | 3005 C2  | 3016 C7 | 3028 F13 | 3041 F13 | 3054 D6  | 3069 E5  | 3089 A4  | 3127 D12 | 5291 H12 | 6010 F4  | 6029 B11 | 6077 D8  | 7009 E4  | 7022 C9  | F004 C5  | F290 H12 | I004 A5  | I015 D2 | I026 F2 | I037 C7 | I048 D7  | I059 E8  | I070 B11 | I081 F7  | I092 F13 | I287 A4  | I298 C7  |          |
| 1083 F11 | 2012 D9  | 2025 D13 | 2036 D2  | 2047 E1  | 2291 G11 | 3006 D2  | 3017 D7 | 3029 E13 | 3042 D1  | 3056 E4  | 3071 F2  | 3090 A2  | 3129 D13 | 5292 H12 | 6011 F4  | 6030 B11 | 6095 A5  | 7010 E12 | 7023 E9  | F005 C9  | F292 H12 | I005 B2  | I016 E2 | I027 C2 | I038 C8 | I049 D8  | I060 A10 | I071 F10 | I082 F7  | I093 F13 | I288 B5  | I299 B11 |          |



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**AD5** DISPLAY SUPPLY: AUX SUPPLY

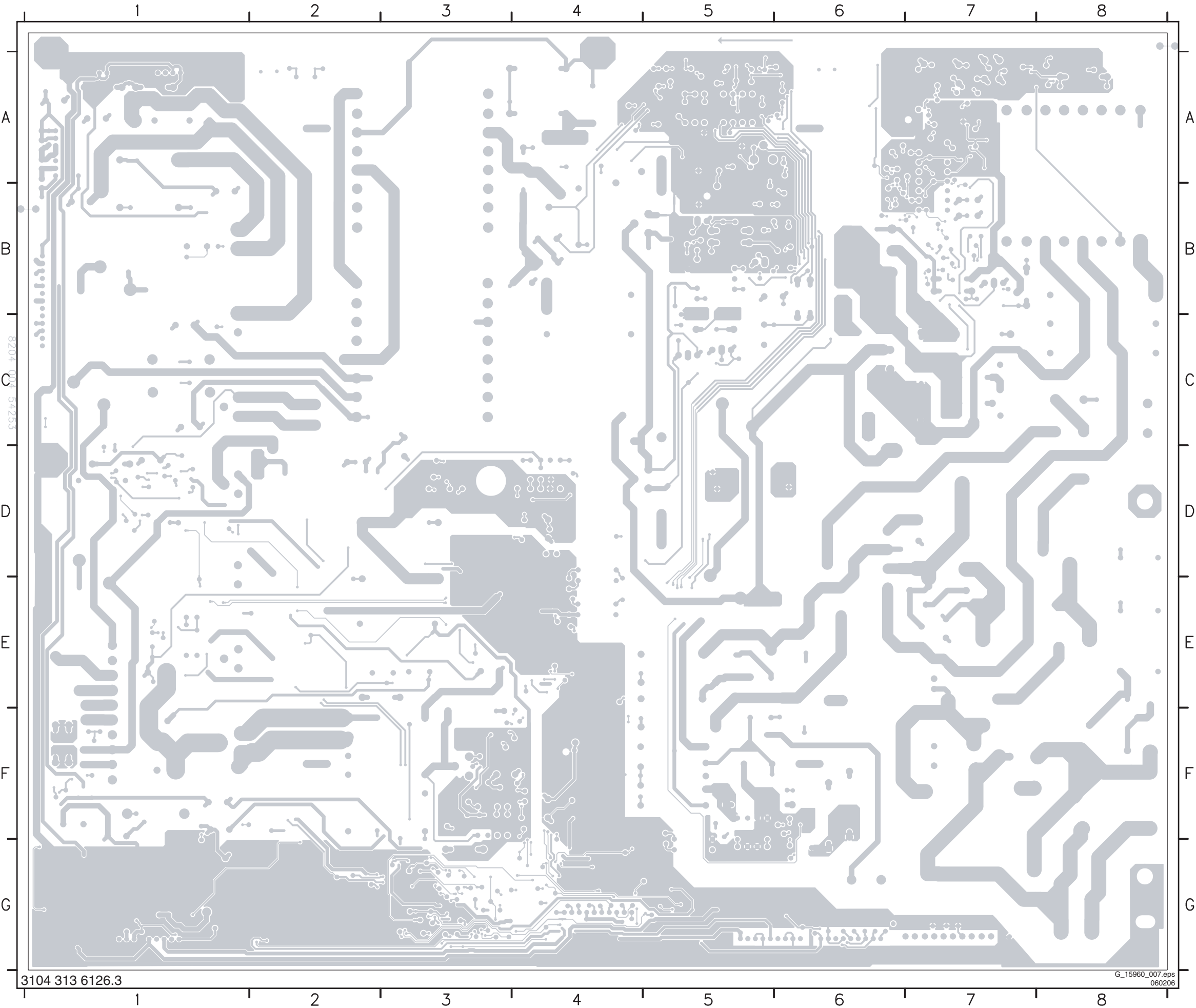


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| 1200 G5   | 3216 H7  | I07 C4   |
| 1260 A1   | 3217 H8  | I08 D5   |
| 1M08 C13  | 3218 I9  | I09 D2   |
| 1M10 A13  | 3219 I9  | I10 D3   |
| 1M46 B13  | 3220 I9  | I11 B13  |
| 2021 I4   | 3221 B11 | I12 D3   |
| 2050 H3   | 3222 C11 | I13 D1   |
| 2051 H2   | 3223 A11 | I14 E2   |
| 2054 C1   | 3225 H11 | I15 D2   |
| 2055 E2   | 3226 G11 | I16 D2   |
| 2056 D1   | 3228 F12 | I17 D3   |
| 2057 E3   | 3229 F10 | I18 D4   |
| 2058 H1   | 3230 A11 | I19 D10  |
| 2059 I1   | 3231 C10 | I20 D8   |
| 2061 I2   | 3235 I10 | I21 D7   |
| 2111 D1   | 3236 H13 | I22 E10  |
| 2112 D1   | 3237 H13 | I23 D9   |
| 2113 D1   | 3238 I12 | I24 D7   |
| 2114 E2   | 3263 A6  | I25 D9   |
| 2117 D3   | 3264 A9  | I26 D8   |
| 2118 C4   | 3265 B8  | I27 D8   |
| 2121 E11  | 3267 B10 | I28 D8   |
| 2122 D1   | 3268 I12 | I29 E10  |
| 2123 D7   | 3269 A10 | I30 A9   |
| 2126 E8   | 5121 C5  | I31 E7   |
| 2133 E9   | 5220 G9  | I32 E9   |
| 2203 I4   | 5225 H11 | I33 B9   |
| 2205 E8   | 5226 H10 | I34 B10  |
| 2210 E6   | 5260 A6  | I35 C6   |
| 2211 E6   | 5268 A10 | I36 B10  |
| 2212 H6   | 6053 H3  | I37 B13  |
| 2213 A4   | 6054 E1  | I38 A10  |
| 2214 I4   | 6055 E1  | I39 A7   |
| 2215 H1   | 6063 B3  | I40 B8   |
| 2217 H8   | 6062 H6  | I41 A8   |
| 2218 G9   | 6086 I1  | I42 A6   |
| 2219 I8   | 6111 D1  | I43 I6   |
| 2222 G10  | 6112 E1  | I47 C2   |
| 2223 G1   | 6113 B9  | I48 H8   |
| 2225 H10  | 6114 B9  | I52 C9   |
| 2226 G11  | 6117 C3  | I58 C1   |
| 2227 G11  | 6120 D4  | I59 E1   |
| 2228 H10  | 6123 D8  | I60 E2   |
| 2229 E10  | 6124 B6  | I61 G2   |
| 2231 I12  | 6132 B5  | I62 C2   |
| 2234 I11  | 6120 B8  | I64 C1   |
| 2235 I12  | 6202 I4  | I65 E3   |
| 2236 I12  | 6203 F4  | I66 F6   |
| 2237 H12  | 6204 F4  | I67 F7   |
| 2260 B6   | 6205 I5  | I68 F7   |
| 2261 A6   | 6206 F5  | I69 H8   |
| 2262 A6   | 6207 A11 | I70 H10  |
| 2263 B6   | 6208 A11 | I71 H11  |
| 2264 B6   | 6210 I7  | I73 A6   |
| 2265 A9   | 6213 H7  | I74 D9   |
| 2266 B9   | 6216 H8  | I75 A10  |
| 2267 B9   | 6225 G10 | I76 B9   |
| 2268 B10  | 6226 I10 | I77 C1   |
| 2269 B10  | 6227 B9  | I200 C3  |
| 2270 B7   | 6258 A9  | I201 H3  |
| 2271 A9   | 6269 H8  | I202 I3  |
| 2273 D12  | 6270 I8  | I203 I1  |
| 2274 D10  | 7055 H3  | I204 I2  |
| 3051 C12  | 7056 I13 | I207 I1  |
| 3053 H4   | 7058 I11 | I208 H5  |
| 3055 B1   | 7059 I2  | I209 H9  |
| 3058 G2   | 7110 C12 | I210 G5  |
| 3082 H2   | 7112 C2  | I211 F5  |
| 3083 H2   | 7113 C2  | I212 F6  |
| 3084 I1   | 7130 E8  | I215 G7  |
| 3085 I1   | 7134 E10 | I216 H8  |
| 3086 I2   | 7201 H8  | I217 H7  |
| 3087 I1   | 7202 H8  | I218 G7  |
| 3088 I1   | 7212 G7  | I219 H8  |
| 3101 D9   | 7217 G9  | I220 H4  |
| 3106 C1   | 7220 F9  | I221 H7  |
| 3107 C1   | 7227 H12 | I222 I4  |
| 3108 C1   | 7202 H9  | I223 I7  |
| 3109 C2   | 7260 A8  | I224 I1  |
| 3110 C2   | 9000 A13 | I225 I1  |
| 3111 C5   | 9001 A13 | I230 F11 |
| 3112 D1   | 9008 B12 | I231 F11 |
| 3113 D1   | 9009 B12 | I232 F11 |
| 3114 D2   | 9013 A11 | I234 G11 |
| 3115 D3   | I012 D12 | I235 G11 |
| 3116 D3   | F106 A13 | I236 G9  |
| 3117 D3   | F101 E1  | I237 H11 |
| 3118 D1   | F117 D9  | I238 G10 |
| 3119 D7   | F113 A4  | I240 H9  |
| 3120 D7   | F114 C12 | I242 B8  |
| 3121 D7   | F115 A12 | I243 I1  |
| 3122 D7   | F116 I12 | I244 I3  |
| 3123 D7   | F118 E12 | I245 I8  |
| 3124 D8   | F119 E12 | I246 B6  |
| 3125 E8   | F120 F12 | I247 B9  |
| 3126 E7   | F121 B13 | I248 C4  |
| 3128 E8   | F122 E12 | I249 C5  |
| 3130 D8   | F123 E13 | I673 G8  |
| 3131 D8   | F124 E13 | I674 H8  |
| 3132 E7   | F125 E11 | I675 C1  |
| 3133 C8   | F126 E11 | I902 C10 |
| 3134 D10  | I27 E11  |          |
| 3135 E10  | I28 E11  |          |
| 3136 E10  | I29 E11  |          |
| 3137 D8   | F330 D12 |          |
| 3138 D8   | F331 D12 |          |
| 3143 E6   | F332 E13 |          |
| 3147 D9   | F333 E12 |          |
| 3148 D9   | F334 E12 |          |
| 3150 D7   | F335 G12 |          |
| 3200 G5   | F336 G12 |          |
| 3201 H5   | F338 H12 |          |
| 3202 H5   | F339 H12 |          |
| 3203 H5   | F340 E12 |          |
| 3204 I5   | F260 A5  |          |
| 3205 I5   | F264 A12 |          |
| 3206 F6   | F265 A6  |          |
| 3207 F7   | F380 B13 |          |
| 3208 F7   | F382 B13 |          |
| 3209 F7   | I101 B2  |          |
| 3210 H11  | I102 B3  |          |
| 3212 H6   | I103 A7  |          |

|      |    |      |    |      |    |      |     |      |    |      |     |      |    |      |    |
|------|----|------|----|------|----|------|-----|------|----|------|-----|------|----|------|----|
| 0201 | B4 | 2229 | E6 | 3006 | A4 | 3132 | E5  | 3383 | G6 | 5001 | B4  | 6513 | F3 | 9029 | G5 |
| 0203 | D3 | 2230 | E6 | 3007 | A4 | 3133 | E5  | 3384 | G6 | 5002 | A5  | 6600 | E3 | 9030 | D4 |
| 0204 | C7 | 2231 | E7 | 3008 | A5 | 3134 | D6  | 3386 | G4 | 5004 | C5  | 6601 | A2 | 9031 | C3 |
| 0308 | G1 | 2232 | E6 | 3009 | A5 | 3135 | D5  | 3389 | G7 | 5005 | E1  | 6602 | A3 | 9401 | G3 |
| 0309 | D1 | 2233 | E8 | 3010 | A4 | 3136 | D1  | 3390 | G6 | 5121 | D6  | 6603 | D3 |      |    |
| 0311 | G3 | 2235 | E8 | 3011 | A4 | 3137 | E9  | 3391 | G6 | 5122 | D6  | 6604 | E3 |      |    |
| 0323 | F8 | 2236 | E8 | 3012 | A4 | 3138 | E6  | 3392 | G4 | 5225 | E8  | 6608 | B2 |      |    |
| 1002 | A8 | 2237 | E8 | 3013 | A4 | 3143 | E6  | 3393 | G5 | 5229 | B8  | 6609 | B2 |      |    |
| 1004 | F8 | 2280 | G8 | 3014 | B4 | 3147 | D6  | 3394 | G5 | 5260 | H8  | 6611 | G3 |      |    |
| 1005 | G4 | 2261 | G8 | 3015 | B4 | 3149 | F5  | 3395 | G4 | 5268 | H8  | 6640 | A2 |      |    |
| 1007 | F8 | 2262 | G8 | 3016 | B4 | 3150 | D5  | 3396 | G4 | 5290 | A8  | 6641 | A2 |      |    |
| 1082 | C8 | 2263 | G8 | 3017 | B4 | 3200 | F03 | 3397 | G6 | 5291 | F8  | 6642 | A2 |      |    |
| 1083 | C8 | 2264 | G8 | 3018 | B4 | 3201 | F6  | 3398 | G6 | 5292 | A8  | 6643 | A2 |      |    |
| 1084 | A8 | 2265 | G8 | 3019 | B4 | 3202 | F6  | 3399 | G6 | 5293 | A8  | 6651 | A3 |      |    |
| 1110 | D7 | 2266 | G8 | 3020 | A3 | 3203 | G6  | 3400 | F2 | 5401 | F3  | 6652 | A2 |      |    |
| 1200 | E6 | 2267 | G8 | 3021 | B5 | 3204 | F5  | 3401 | F1 | 5402 | D2  | 6653 | A2 |      |    |
| 1260 | F8 | 2268 | G8 | 3022 | E5 | 3205 | F5  | 3402 | E2 | 5500 | F4  | 6654 | B3 |      |    |
| 1400 | F1 | 2269 | F8 | 3023 | E5 | 3206 | F5  | 3403 | F5 | 5501 | F5  | 6655 | B3 |      |    |
| 1401 | D2 | 2270 | G8 | 3024 | D8 | 3207 | F5  | 3404 | E4 | 5601 | B3  | 6661 | A3 |      |    |
| 1406 | E2 | 2271 | G8 | 3025 | E5 | 3208 | F5  | 3451 | E4 | 5612 | C2  | 6663 | A2 |      |    |
| 1450 | F4 | 2273 | G8 | 3026 | G4 | 3209 | F5  | 3452 | C1 | 5660 | A1  | 6665 | A1 |      |    |
| 1460 | E4 | 2274 | D6 | 3027 | A2 | 3210 | E8  | 3460 | E5 | 6003 | B3  | 6666 | A2 |      |    |
| 1402 | B8 | 2290 | B8 | 3028 | A5 | 3212 | F6  | 3461 | E5 | 6003 | B4  | 7001 | A4 |      |    |
| 1902 | C1 | 2291 | F8 | 3029 | E5 | 3213 | F6  | 3471 | G5 | 6009 | G09 | 7007 | C4 |      |    |
| 1M03 | G5 | 2292 | A8 | 3030 | E5 | 3214 | F6  | 3465 | F5 | 6006 | B4  | 7003 | E5 |      |    |
| 1M08 | A8 | 2293 | C8 | 3031 | E5 | 3215 | F6  | 3467 | F5 | 6005 | B3  | 7004 | G6 |      |    |
| 1M10 | A8 | 2294 | A8 | 3032 | E5 | 3216 | F6  | 3469 | E5 | 6007 | C4  | 7005 | D5 |      |    |
| 1M46 | G8 | 2295 | B8 | 3033 | B3 | 3217 | F6  | 3470 | F5 | 6008 | B4  | 7006 | B5 |      |    |
| 1P02 | C1 | 2296 | C8 | 3034 | E5 | 3218 | F6  | 3471 | G5 | 6009 | G09 | 7007 | C4 |      |    |
| 1P10 | G2 | 2297 | F8 | 3035 | F4 | 3219 | F5  | 3472 | F5 | 6010 | A3  | 7008 | A3 |      |    |
| 1P22 | G3 | 2305 | G7 | 3036 | D1 | 3220 | G6  | 3473 | G5 | 6011 | A3  | 7009 | A3 |      |    |
| 2000 | A5 | 2306 | G7 | 3037 | D8 | 3221 | A8  | 3501 | G4 | 6012 | E5  | 7010 | E5 |      |    |
| 2001 | E2 | 2307 | G2 | 3038 | D8 | 3222 | A8  | 3502 | G4 | 6013 | C8  | 7011 | E5 |      |    |
| 2002 | G1 | 2310 | G6 | 3039 | D8 | 3224 | E8  | 3503 | G5 | 6014 | C8  | 7012 | B3 |      |    |
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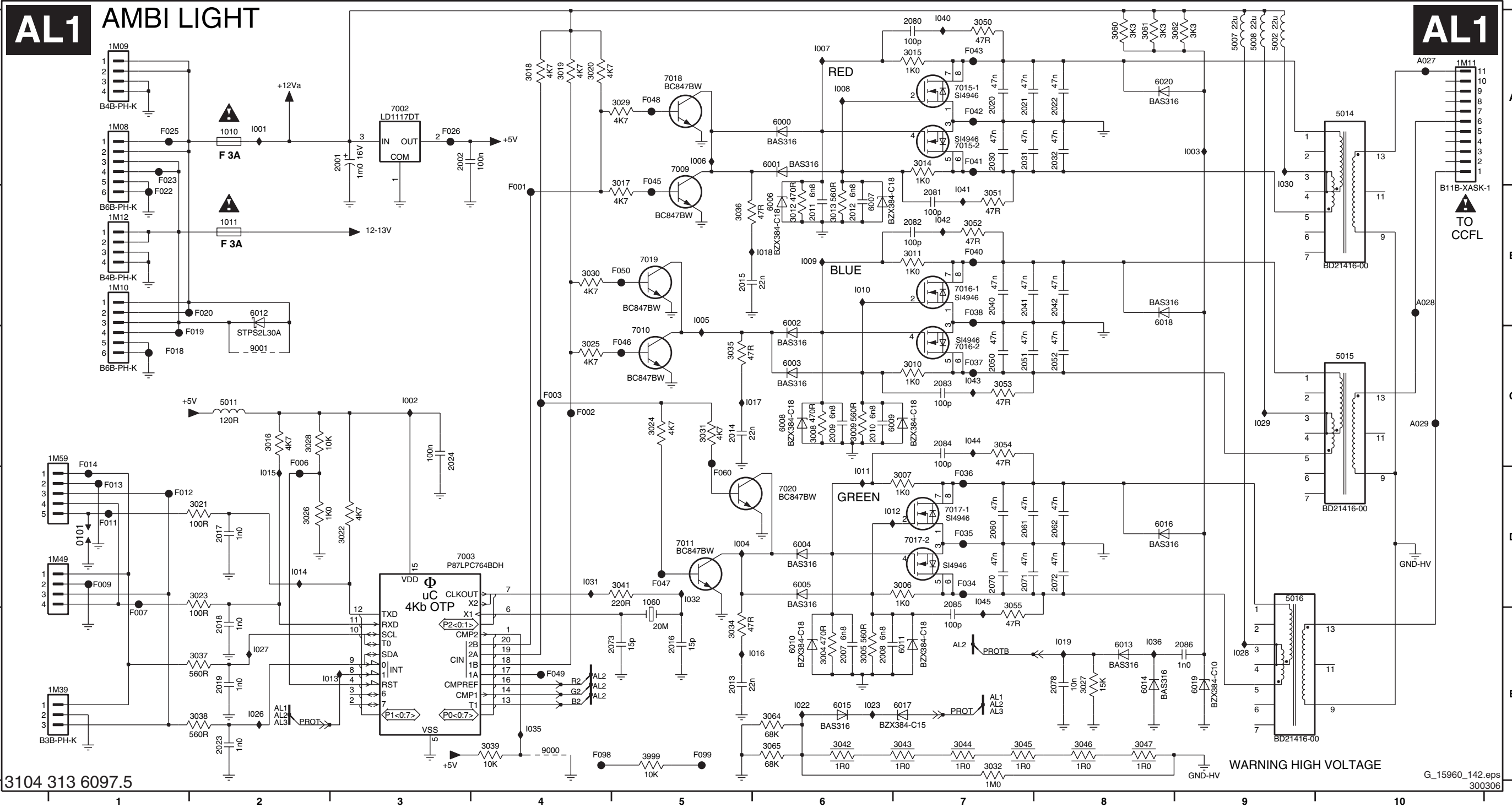


Layout Display Supply FHP (Bottom Side)



**Ambi Light**

|          |         |         |         |         |         |         |         |         |          |         |           |           |          |         |         |         |         |         |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|-----------|-----------|----------|---------|---------|---------|---------|---------|
| 0101 D1  | 2001 A3 | 2017 D2 | 2041 B7 | 2078 E8 | 3008 C6 | 3020 A4 | 3032 E7 | 3046 E8 | 3065 E6  | 6003 C6 | 6015 E6   | 7015-2 A7 | A029 C10 | F019 C2 | F041 A7 | I001 A2 | I013 E3 | I029 C9 |
| 1010 A2  | 2002 A3 | 2018 E2 | 2042 B8 | 2080 A7 | 3009 C6 | 3021 D2 | 3034 E5 | 3047 E8 | 3999 E5  | 6004 D6 | 6016 D8   | 7016-1 B7 | F001 B4  | F020 B2 | F042 A7 | I002 C3 | I014 D2 | I030 A9 |
| 1011 B2  | 2007 E6 | 2019 E2 | 2050 C7 | 2081 B7 | 3010 C7 | 3022 D3 | 3035 C5 | 3050 A7 | 5002 A9  | 6005 D6 | 6017 E7   | 7016-2 C7 | F002 C4  | F022 B1 | F043 A7 | I003 A9 | I015 D2 | I031 D4 |
| 1060 D5  | 2008 E6 | 2020 A7 | 2051 C7 | 2082 B7 | 3011 B7 | 3023 D2 | 3036 B5 | 3051 B7 | 5007 A9  | 6006 B6 | 6018 B8   | 7017-1 D7 | F003 C4  | F023 A1 | F045 A5 | I004 D5 | I016 E6 | I032 D5 |
| 1M08 A1  | 2009 C6 | 2021 A7 | 2052 C8 | 2083 C7 | 3012 B6 | 3024 C5 | 3037 E2 | 3052 B7 | 5008 A9  | 6007 B6 | 6019 E9   | 7017-2 D7 | F006 C2  | F025 A1 | F046 C5 | I005 B5 | I017 C6 | I035 E4 |
| 1M09 A1  | 2010 C6 | 2022 A8 | 2060 D7 | 2084 C7 | 3013 B6 | 3025 C4 | 3038 E2 | 3053 C7 | 5011 C2  | 6008 C6 | 6020 A8   | 7018 A5   | F007 E1  | F026 A3 | F047 D5 | I006 A5 | I018 B6 | I036 E8 |
| 1M10 B1  | 2011 B6 | 2023 E2 | 2061 D7 | 2085 D7 | 3014 A7 | 3026 D2 | 3039 E4 | 3054 C7 | 5014 A10 | 6009 C6 | 7002 A3   | 7019 B5   | F009 D1  | F034 D7 | F048 A5 | I007 A6 | I019 E8 | I040 A7 |
| 1M11 A10 | 2012 B6 | 2024 C3 | 2062 D8 | 2086 E9 | 3015 A7 | 3027 E8 | 3041 D5 | 3055 E7 | 5015 C10 | 6010 E6 | 7003 D3   | 7020 D6   | F011 D1  | F035 D7 | F049 E4 | I008 A6 | I022 E6 | I041 B7 |
| 1M12 B1  | 2013 E5 | 2030 A7 | 2070 D7 | 3004 E6 | 3016 C2 | 3028 C2 | 3042 E6 | 3060 A8 | 5016 D9  | 6011 E7 | 7009 A5   | 9000 E4   | F012 D1  | F036 D7 | F050 B5 | I009 B6 | I023 E6 | I042 B7 |
| 1M39 E1  | 2014 C5 | 2031 A7 | 2071 D7 | 3005 E6 | 3017 B5 | 3029 A5 | 3043 E7 | 3061 A8 | 6000 A6  | 6012 B2 | 7010 C5   | 9001 C2   | F013 D1  | F037 C7 | F060 D5 | I010 B6 | I026 E2 | I043 C7 |
| 1M49 D1  | 2015 B5 | 2032 A8 | 2072 D8 | 3006 D7 | 3018 A4 | 3030 B4 | 3044 E7 | 3062 A9 | 6001 A6  | 6013 E8 | 7011 D5   | A027 A10  | F014 D1  | F038 B7 | F098 E4 | I011 D6 | I027 E2 | I044 C7 |
| 1M59 C1  | 2016 E5 | 2040 B7 | 2073 E5 | 3007 D7 | 3019 A4 | 3031 C5 | 3045 E7 | 3064 E6 | 6002 B6  | 6014 E8 | 7015-1 A7 | A028 B10  | F018 C1  | F040 B7 | F099 E5 | I012 D6 | I028 E9 | I045 D7 |



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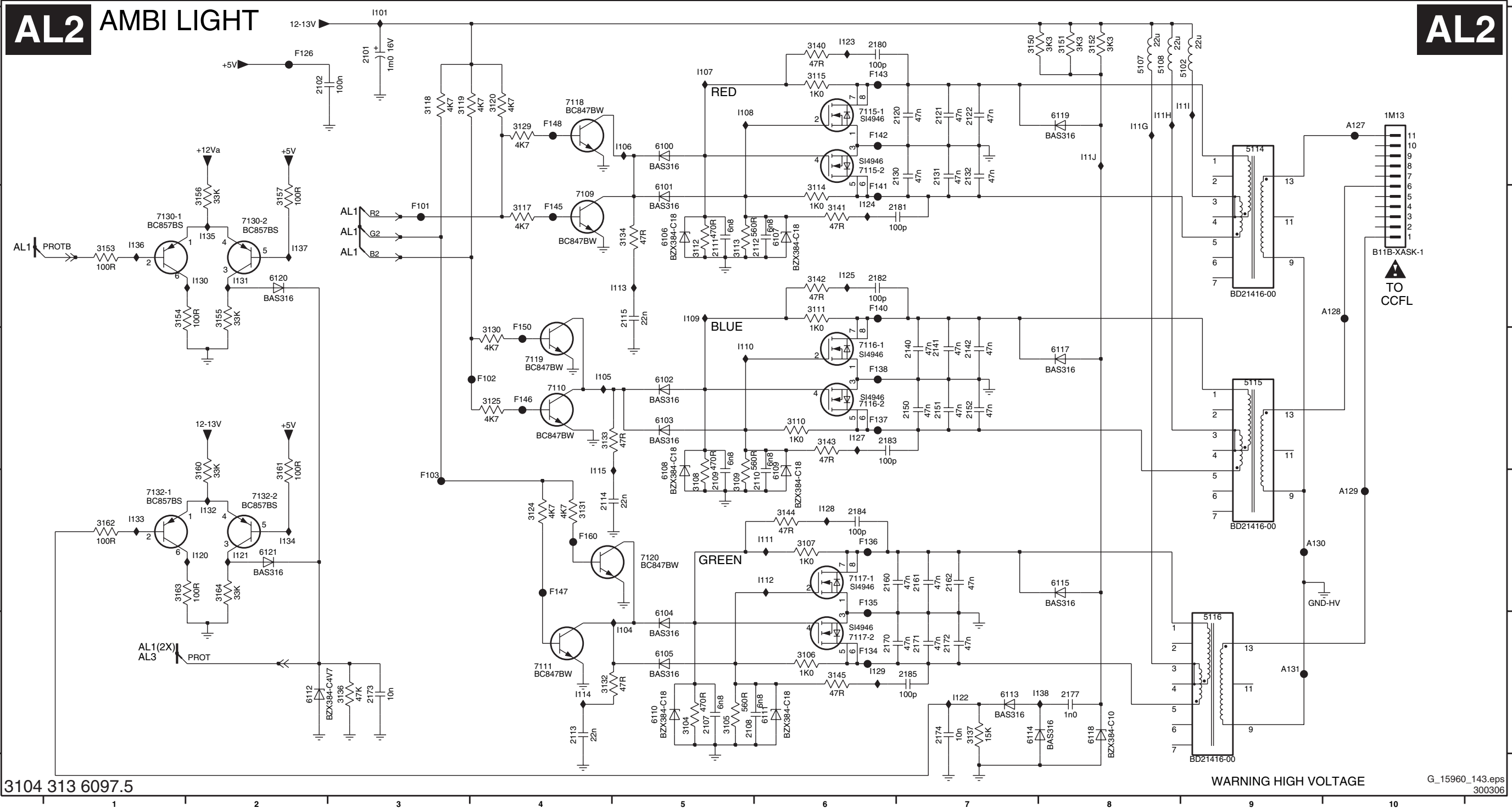
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Ambi Light

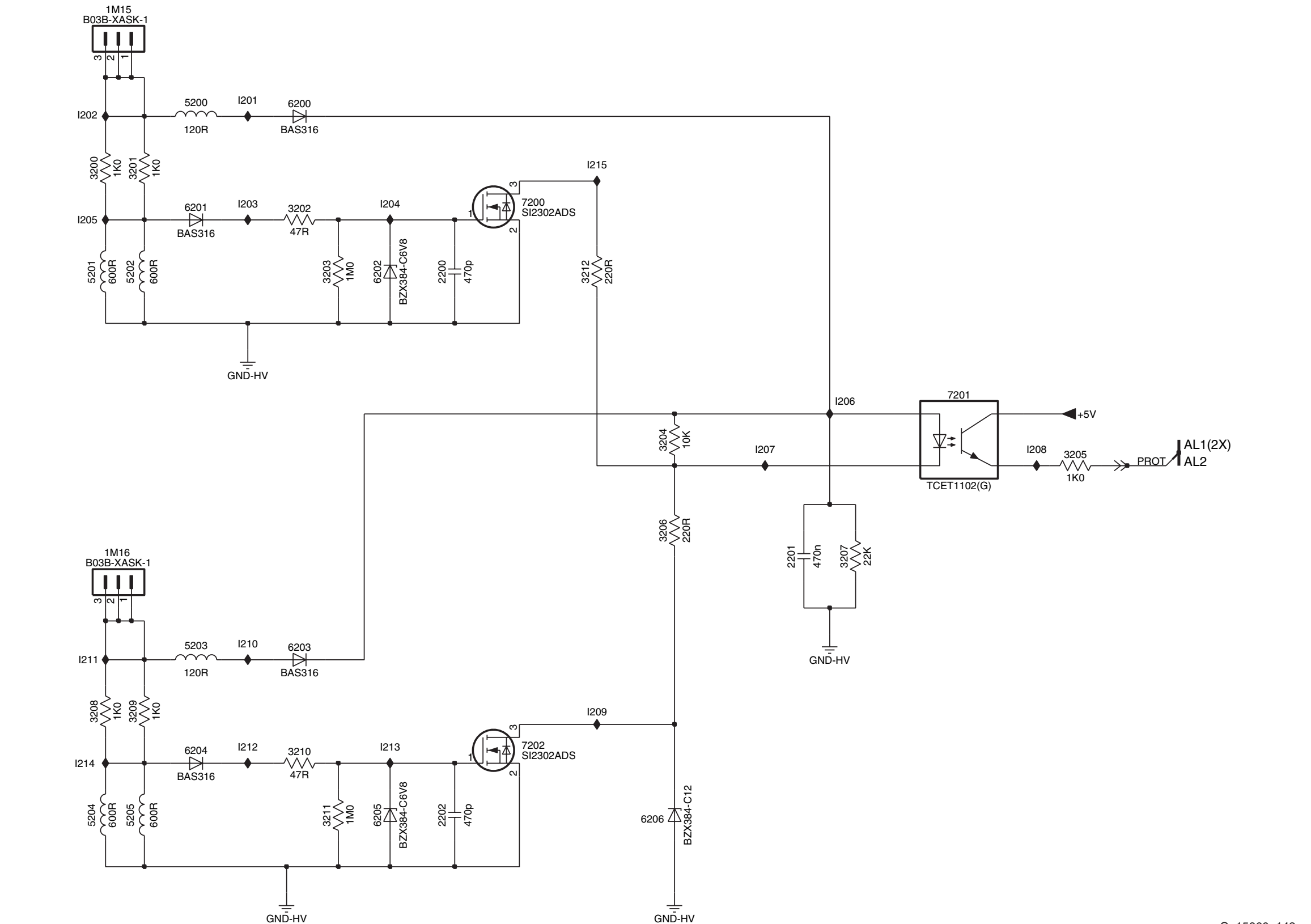
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| 1M13 A10 | 2112 B6 | 2131 A7 | 2160 D6 | 2177 E8 | 3105 E5 | 3113 B5 | 3125 C4 | 3137 E7 | 3151 A8 | 3161 D2 | 5115 C9 | 6106 B5 | 6114 E7 | 7110 C4   | 7118 A4   | A128 B10 | F134 E6 | F143 A6 | I104 E5 | I112 D6 | I120 D2 | I129 E6 | I137 B2 |
| 2101 A3  | 2113 E4 | 2132 A7 | 2161 D7 | 2180 A6 | 3106 E6 | 3114 B6 | 3129 A4 | 3140 A6 | 3152 A8 | 3162 D1 | 5116 E9 | 6107 B6 | 6115 D8 | 7111 E4   | 7119 C4   | A129 D10 | F135 D6 | F145 B4 | I105 C4 | I113 B5 | I121 D2 | I130 B2 | I138 E8 |
| 2102 A2  | 2114 D4 | 2140 C7 | 2162 D7 | 2181 B7 | 3107 D6 | 3115 A6 | 3130 C4 | 3141 B6 | 3153 B1 | 3163 D1 | 6100 A5 | 6108 D5 | 6117 C8 | 7115-1 A6 | 7120 D5   | A130 D9  | F136 D6 | F146 C4 | I106 A5 | I114 E4 | I122 E7 | I131 B2 |         |
| 2107 E5  | 2115 B5 | 2141 C7 | 2170 E6 | 2182 B6 | 3108 D5 | 3117 B4 | 3131 D4 | 3142 B6 | 3154 B1 | 3164 D2 | 6101 B5 | 6109 D6 | 6118 E8 | 7115-2 A6 | 7130-1 B1 | A131 E9  | F137 C6 | F147 D4 | I107 A5 | I115 D4 | I123 A6 | I132 D2 |         |
| 2108 E5  | 2120 A6 | 2142 C7 | 2171 E7 | 2183 C6 | 3109 D5 | 3118 A3 | 3132 E4 | 3143 C6 | 3155 B2 | 5102 A9 | 6102 C5 | 6110 E5 | 6119 A8 | 7116-1 C6 | 7130-2 B2 | F101 B3  | F138 C6 | F148 A4 | I108 A5 | I11G A8 | I124 B6 | I133 D1 |         |
| 2109 D5  | 2121 A7 | 2150 C7 | 2172 E7 | 2184 D6 | 3110 C6 | 3119 A3 | 3133 C4 | 3144 D6 | 3156 B2 | 5107 A8 | 6103 C5 | 6111 E6 | 6120 B2 | 7116-2 C6 | 7132-1 D1 | F102 C4  | F140 B6 | F150 C4 | I109 B5 | I11H A8 | I125 B6 | I134 D2 |         |
| 2110 D6  | 2122 A7 | 2151 C7 | 2173 E3 | 2185 E7 | 3111 B6 | 3120 A4 | 3134 B5 | 3145 E6 | 3157 B2 | 5108 A8 | 6104 E5 | 6112 E2 | 6121 D2 | 7117-1 D6 | 7132-2 D2 | F103 D3  | F141 B6 | F160 D4 | I110 C5 | I111 A9 | I127 C6 | I135 B2 |         |
| 2111 B5  | 2130 A6 | 2152 C7 | 2174 E7 | 3104 E5 | 3112 B5 | 3124 D4 | 3136 E3 | 3150 A7 | 3160 D2 | 5114 A9 | 6105 E5 | 6113 E7 | 7109 B4 | 7117-2 E6 | A127 A10  | F126 A2  | F142 A6 | I101 A3 | I111 D6 | I11J A8 | I128 D6 | I136 B1 |         |



Ambi Light

AL3 AMBI LIGHT

AL3

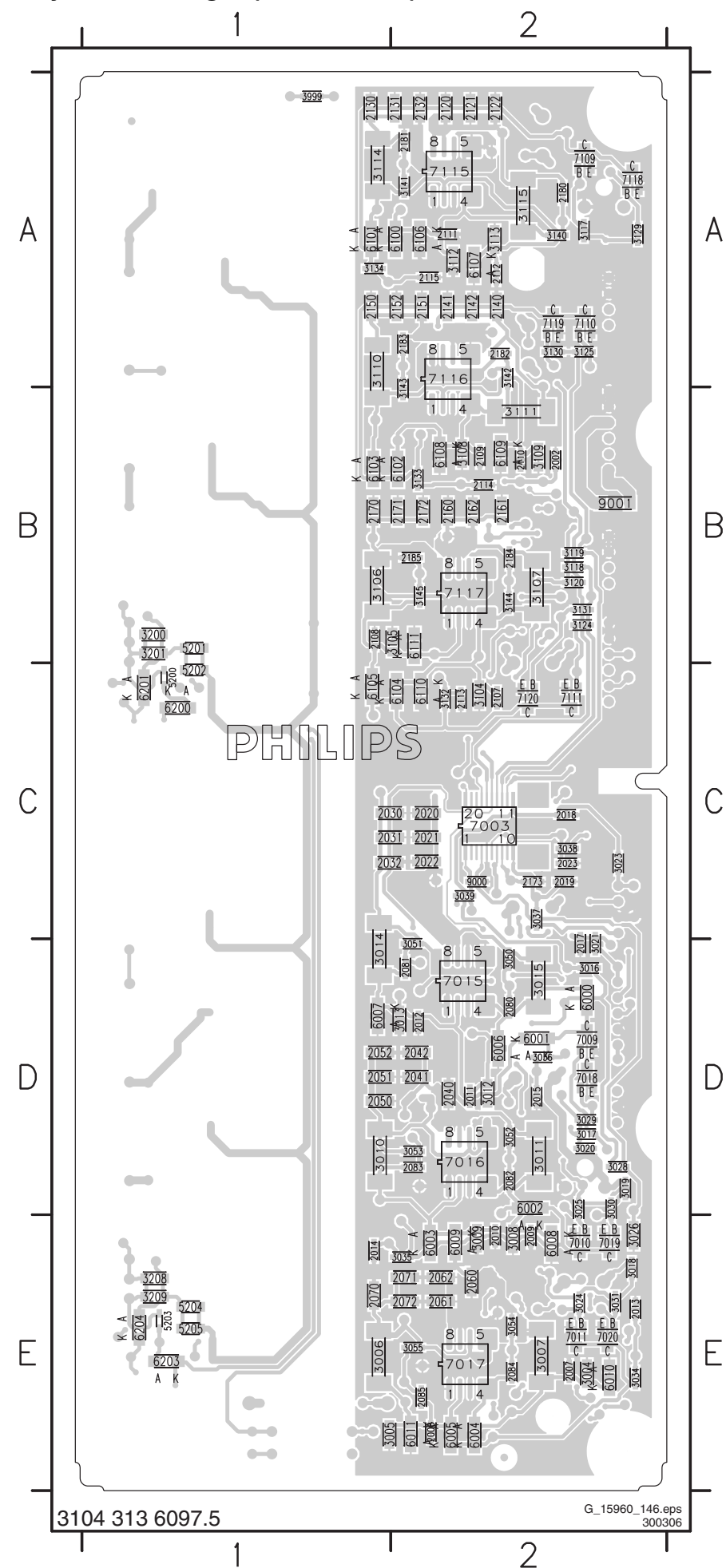
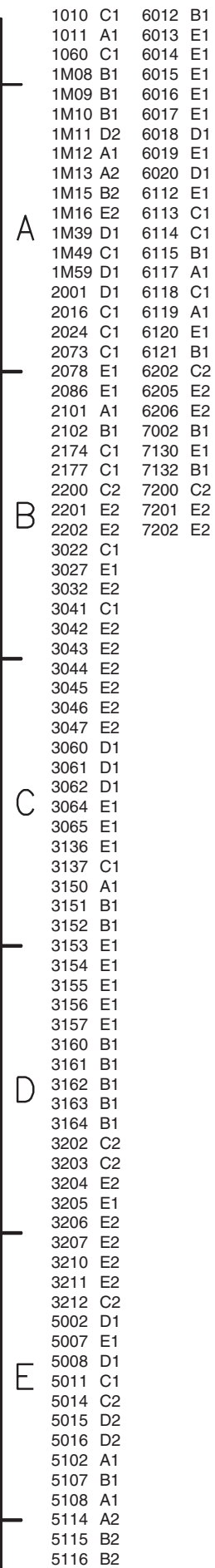


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- 1M15 A1
- 1M16 D1
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- 3200 B1
- 3201 B1
- 3202 B2
- 3203 B2
- 3204 C4
- 3205 C6
- 3206 D4
- 3207 D5
- 3208 E1
- 3209 E1
- 3210 E2
- 3211 E2
- 3212 B4
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- 6200 A2
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- I206 C5
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- I215 B4

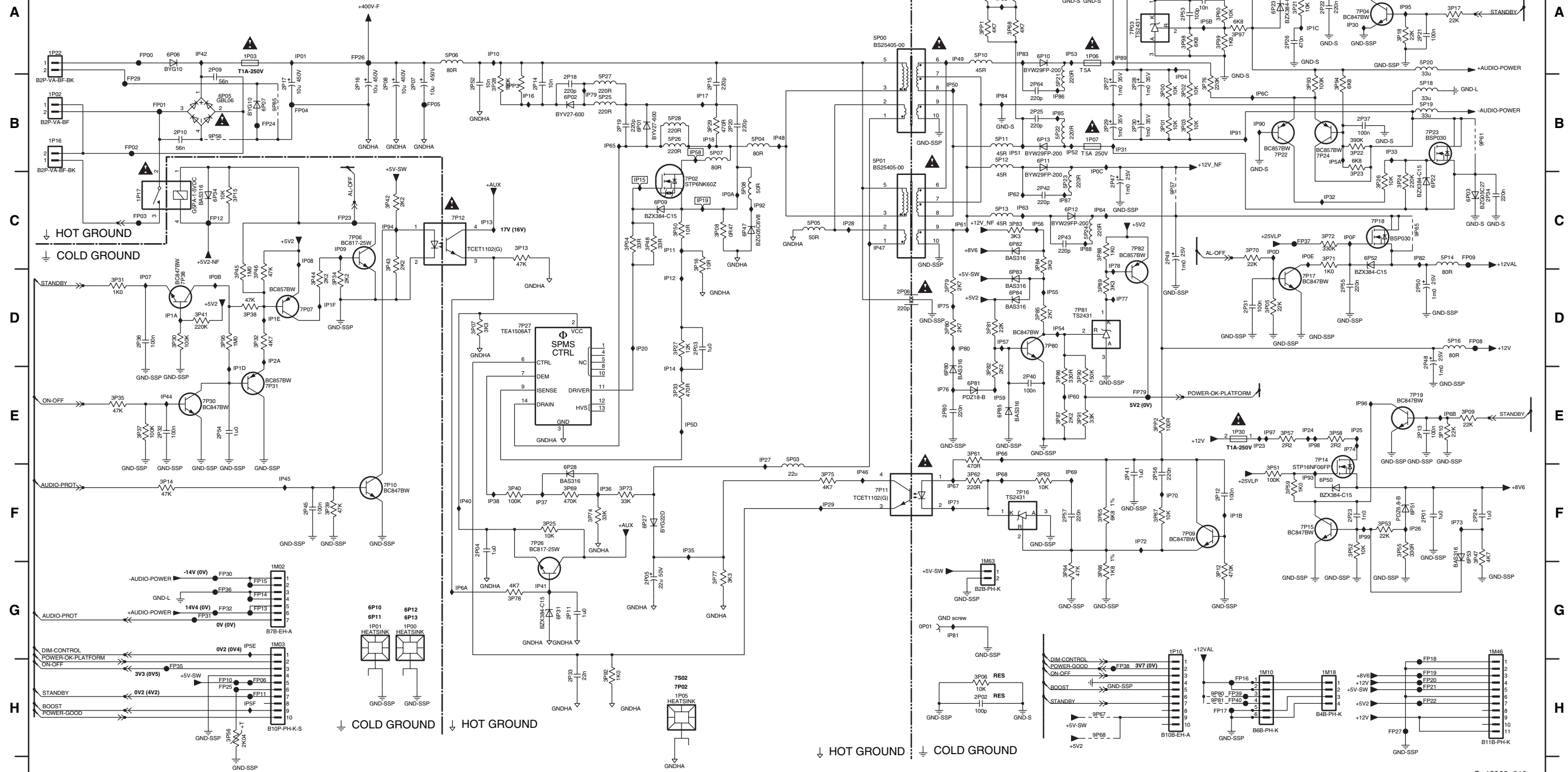
### Layout Ambi Light (Bottom Side)



|      |    |      |    |      |    |
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| 2007 | E2 | 3012 | D2 | 6008 | E2 |
| 2008 | E2 | 3013 | D2 | 6009 | E2 |
| 2009 | E2 | 3014 | C2 | 6010 | E2 |
| 2010 | E2 | 3015 | D2 | 6011 | E2 |
| 2011 | D2 | 3016 | D2 | 6100 | A1 |
| 2012 | D2 | 3017 | D2 | 6101 | A1 |
| 2013 | E2 | 3018 | E2 | 6102 | B1 |
| 2014 | E1 | 3019 | D2 | 6103 | B1 |
| 2015 | D2 | 3020 | D2 | 6104 | C2 |
| 2017 | D2 | 3021 | D2 | 6105 | C1 |
| 2018 | C2 | 3023 | C2 | 6106 | A2 |
| 2019 | C2 | 3024 | E2 | 6107 | A2 |
| 2020 | C2 | 3025 | D2 | 6108 | B2 |
| 2021 | C2 | 3026 | E2 | 6109 | B2 |
| 2022 | C2 | 3028 | D2 | 6110 | C2 |
| 2023 | C2 | 3029 | D2 | 6111 | B2 |
| 2030 | C1 | 3030 | D2 | 6200 | C1 |
| 2031 | C1 | 3031 | E2 | 6201 | C1 |
| 2032 | C1 | 3034 | E2 | 6203 | E1 |
| 2040 | D2 | 3035 | E2 | 6204 | E1 |
| 2041 | D2 | 3036 | D2 | 7003 | C2 |
| 2042 | D2 | 3037 | C2 | 7009 | D2 |
| 2050 | D1 | 3038 | C2 | 7010 | D2 |
| 2051 | D1 | 3039 | C2 | 7011 | E2 |
| 2052 | D1 | 3050 | D2 | 7015 | C2 |
| 2060 | E2 | 3051 | D2 | 7016 | D2 |
| 2061 | E2 | 3052 | D2 | 7017 | E2 |
| 2062 | E2 | 3053 | D2 | 7018 | D2 |
| 2070 | E1 | 3054 | E2 | 7019 | E2 |
| 2071 | E2 | 3055 | E2 | 7020 | E2 |
| 2072 | E2 | 3104 | C2 | 7109 | A2 |
| 2080 | D2 | 3105 | B2 | 7110 | A2 |
| 2081 | D2 | 3106 | B1 | 7111 | C2 |
| 2082 | D2 | 3107 | B2 | 7115 | A2 |
| 2083 | D2 | 3108 | B2 | 7116 | A2 |
| 2084 | E2 | 3109 | B2 | 7117 | B2 |
| 2085 | E2 | 3110 | A2 | 7118 | A2 |
| 2107 | C2 | 3111 | B2 | 7119 | A2 |
| 2108 | B1 | 3112 | A2 | 7120 | C2 |
| 2109 | B2 | 3113 | A2 | 9000 | C2 |
| 2110 | B2 | 3114 | A1 | 9001 | B2 |
| 2111 | A2 | 3115 | A2 |      |    |
| 2112 | A2 | 3117 | A2 |      |    |
| 2113 | C2 | 3118 | B2 |      |    |
| 2114 | B2 | 3119 | B2 |      |    |
| 2115 | A2 | 3120 | B2 |      |    |
| 2120 | A2 | 3124 | B2 |      |    |
| 2121 | A2 | 3125 | A2 |      |    |
| 2122 | A2 | 3129 | A2 |      |    |
| 2130 | A1 | 3130 | A2 |      |    |
| 2131 | A2 | 3131 | B2 |      |    |
| 2132 | A2 | 3132 | C2 |      |    |
| 2140 | A2 | 3133 | B2 |      |    |
| 2141 | A2 | 3134 | A1 |      |    |
| 2142 | A2 | 3140 | A2 |      |    |
| 2150 | A1 | 3141 | A2 |      |    |
| 2151 | A2 | 3142 | A2 |      |    |
| 2152 | A2 | 3143 | B2 |      |    |
| 2160 | B2 | 3144 | B2 |      |    |
| 2161 | B2 | 3145 | B2 |      |    |
| 2162 | B2 | 3200 | B1 |      |    |
| 2170 | B1 | 3201 | B1 |      |    |
| 2171 | B2 | 3208 | E1 |      |    |
| 2172 | B2 | 3209 | E1 |      |    |
| 2173 | C2 | 3999 | A1 |      |    |
| 2180 | A2 | 5200 | C1 |      |    |
| 2181 | A2 | 5201 | B1 |      |    |
| 2182 | A2 | 5202 | C1 |      |    |
| 2183 | A2 | 5203 | E1 |      |    |
| 2184 | B2 | 5204 | E1 |      |    |
| 2185 | B2 | 5205 | E1 |      |    |
| 3004 | E2 | 6000 | D2 |      |    |
| 3005 | E1 | 6001 | D2 |      |    |
| 3006 | E1 | 6002 | D2 |      |    |
| 3007 | E2 | 6003 | E2 |      |    |
| 3008 | E2 | 6004 | E2 |      |    |
| 3009 | E2 | 6005 | E2 |      |    |
| 3010 | D1 | 6006 | D2 |      |    |

|          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| OP01 G0  | 1P06 A11 | 2P06 D9  | 2P18 B6  | 2P30 B12 | 2P45 F3  | 2P64 B1  | 3P10 E5  | 3P22 B14 | 3P34 D3  | 3P46 D3  | 3P58 E14 | 3P70 C13 | 3P82 E0  | 3P94 B14 | 5P04 B8  | 5P19 B15 | 6P03 C15 | 6P27 F7  | 6P83 D10 | 7P12 C5  | 7P26 F6  | 9P61 B5  | F06H G3  | FP19 H15 | FP32 G2  | IP05 A14 | IP11 C7  | IP1D E2  | IP30 A14 | IP45 F3  | IP57 D10 | IP63 C10 | IP72 F1E | IP84 B10 | IP96 E14 |
| IM02 G3  | 1P07 B1  | 2P07 B4  | 2P19 B6  | 2P31 D13 | 2P47 C11 | 2P60 E10 | 3P11 A13 | 3P23 B14 | 3P35 E1  | 3P47 F15 | 3P59 F13 | 3P71 C14 | 3P83 C10 | 3P95 D2  | 5P05 C8  | 5P20 A15 | 6P04 A11 | 6P28 F6  | 6P84 D10 | 7P14 E13 | 7P27 D5  | 9P65 C14 | F06H D15 | FP20 H15 | FP35 H2  | IP06 A14 | IP12 D7  | IP1D E3  | IP31 B11 | IP49 F9  | IP58 B7  | IP64 C11 | IP73 F15 | IP85 B11 | IP97 E13 |
| IM03 G3  | 1P10 G12 | 2P10 B2  | 2P20 A7  | 2P32 E2  | 2P48 D15 | 3P00 B12 | 3P12 G14 | 3P24 C14 | 3P36 A12 | 3P48 A16 | 3P60 A15 | 3P72 C14 | 3P84 C11 | 3P96 A12 | 5P06 A5  | 5P21 B11 | 6P05 B2  | 6P29 A15 | 6P85 E10 | 7P15 F13 | 7P30 E2  | 9P67 H11 | F06H C15 | FP21 H15 | FP36 G2  | IP07 D3  | IP13 C5  | IP1F D3  | IP32 C14 | IP47 C9  | IP59 E10 | IP65 B6  | IP74 E14 | IP86 B11 | IP98 E14 |
| IM04 G3  | 1P11 G12 | 2P11 B2  | 2P21 A7  | 2P33 E2  | 2P49 D15 | 3P01 B12 | 3P13 G14 | 3P25 C14 | 3P37 A12 | 3P49 A16 | 3P61 A15 | 3P73 C14 | 3P85 C11 | 3P97 A12 | 5P07 A5  | 5P22 B11 | 6P06 B2  | 6P30 A15 | 6P86 E10 | 7P16 F13 | 7P31 E2  | 9P68 H11 | F06H D15 | FP22 H15 | FP37 G2  | IP08 D3  | IP14 C5  | IP1F D3  | IP33 C14 | IP48 C9  | IP60 B6  | IP75 E14 | IP87 B11 | IP99 F14 |          |
| IM18 H14 | 1P17 C1  | 2P10 B2  | 2P22 A7  | 2P34 C15 | 2P50 D14 | 3P02 B12 | 3P14 F2  | 3P26 C14 | 3P28 C12 | 3P40 C7  | 3P62 A10 | 3P74 F6  | 3P86 E11 | 3P98 C12 | 5P08 C8  | 5P23 C11 | 6P07 B3  | 6P47 C8  | 7P02 C7  | 7P17 D13 | 7P38 D2  | 9P80 H12 | FP11 H3  | FP23 C3  | FP38 H11 | IP09 D1  | IP15 C6  | IP1F D3  | IP35 F7  | IP49 A10 | IP58 A12 | IP67 B10 | IP76 E10 | IP88 C11 |          |
| IM46 G15 | 1P22 A1  | 2P11 G6  | 2P23 F14 | 2P35 A11 | 2P51 A12 | 3P03 B12 | 3P15 C2  | 3P27 D7  | 3P39 F3  | 3P51 F13 | 3P63 F11 | 3P75 F8  | 3P87 E11 | 3P99 A12 | 5P10 A10 | 5P24 C11 | 6P09 C7  | 6P50 F14 | 7P03 A12 | 7P16 C14 | 7P80 D11 | 9P81 H12 | FP12 C2  | FP24 B3  | FP39 H13 | IP0A C2  | IP16 B5  | IP24 E3  | IP36 F6  | IP50 B10 | IP5C A3  | IP68 F10 | IP77 D11 | IP89 A11 |          |
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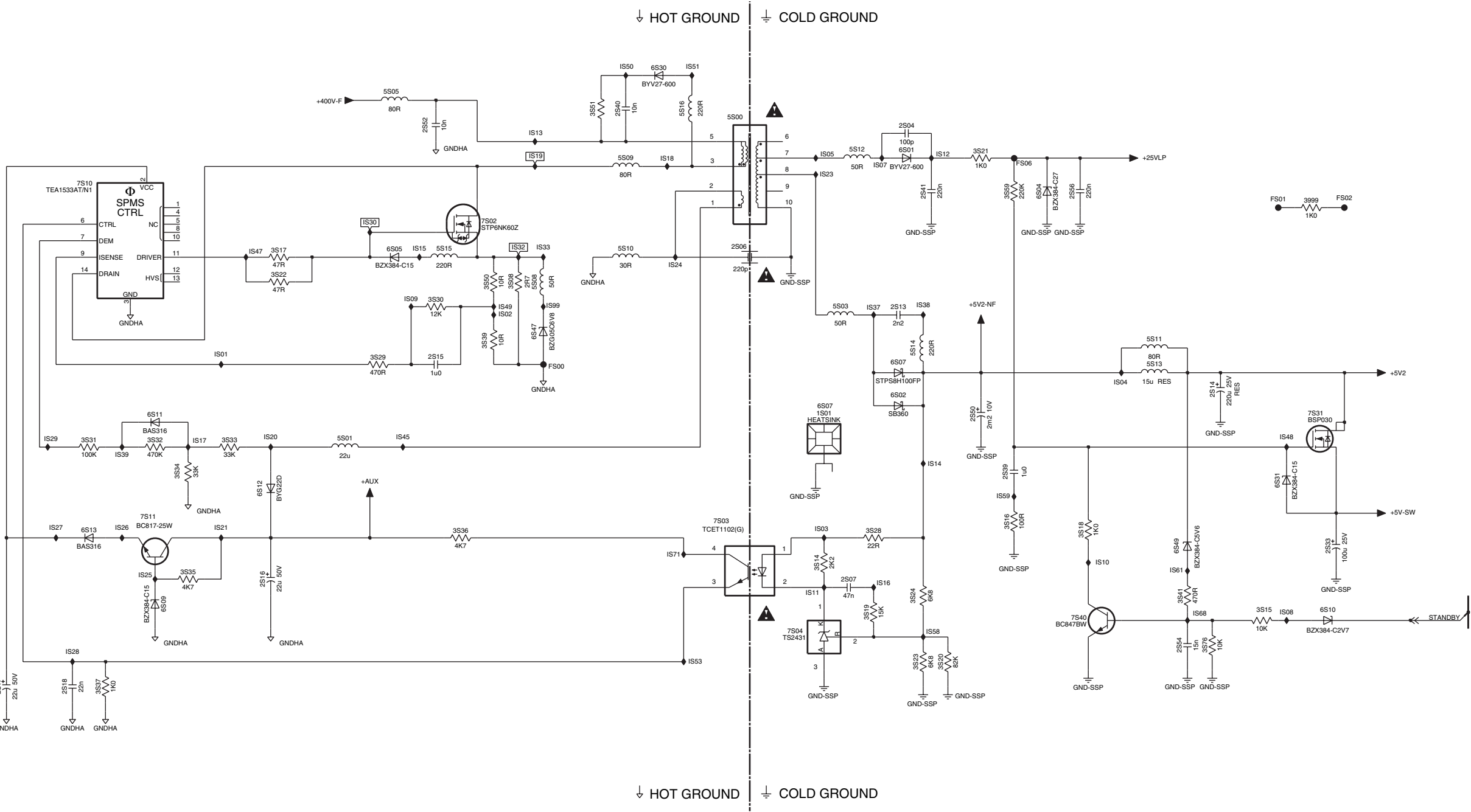


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Platform Supply: Standby Supply

AP2 PLATFORM SUPPLY: STANDBY SUPPLY

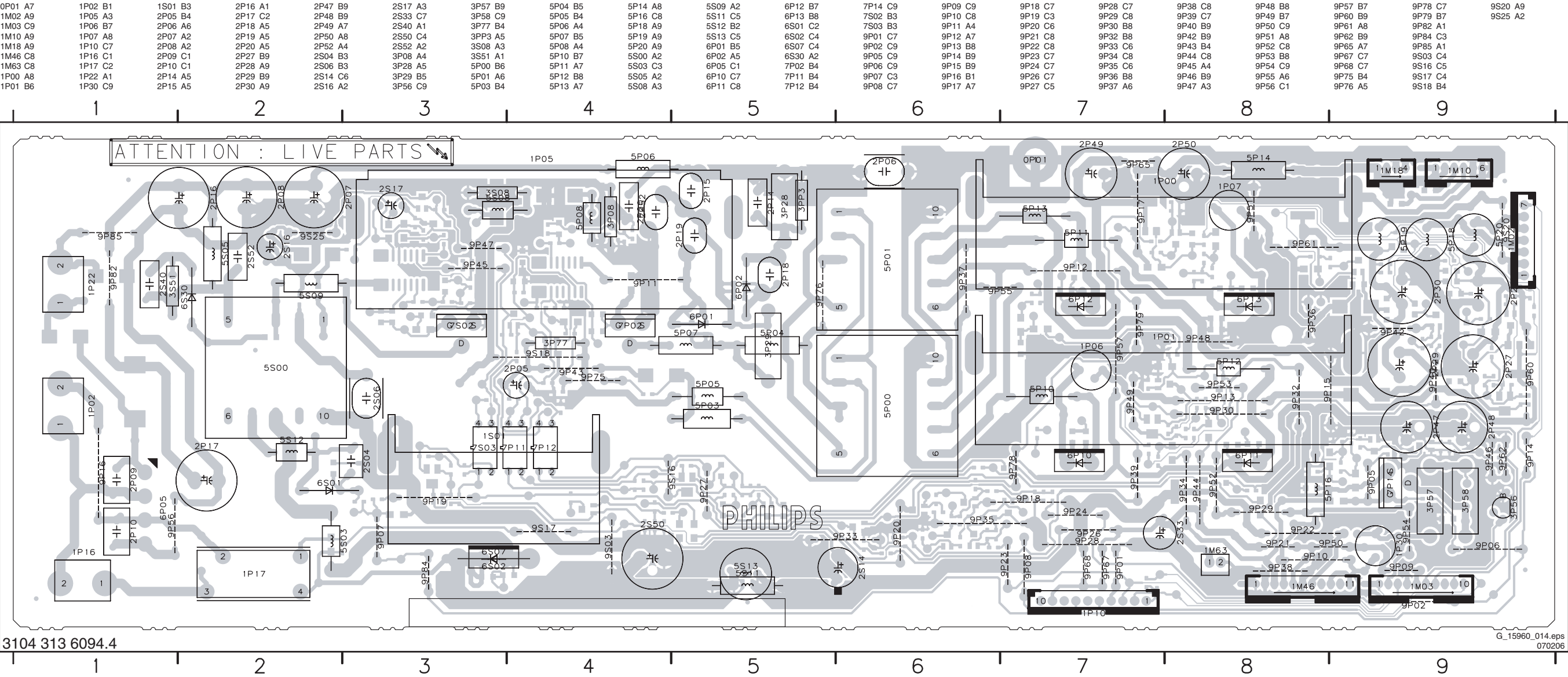
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| 2S17 G1  | IS13 B5  |
| 2S18 G1  | IS14 E9  |
| 2S33 F12 | IS15 C4  |
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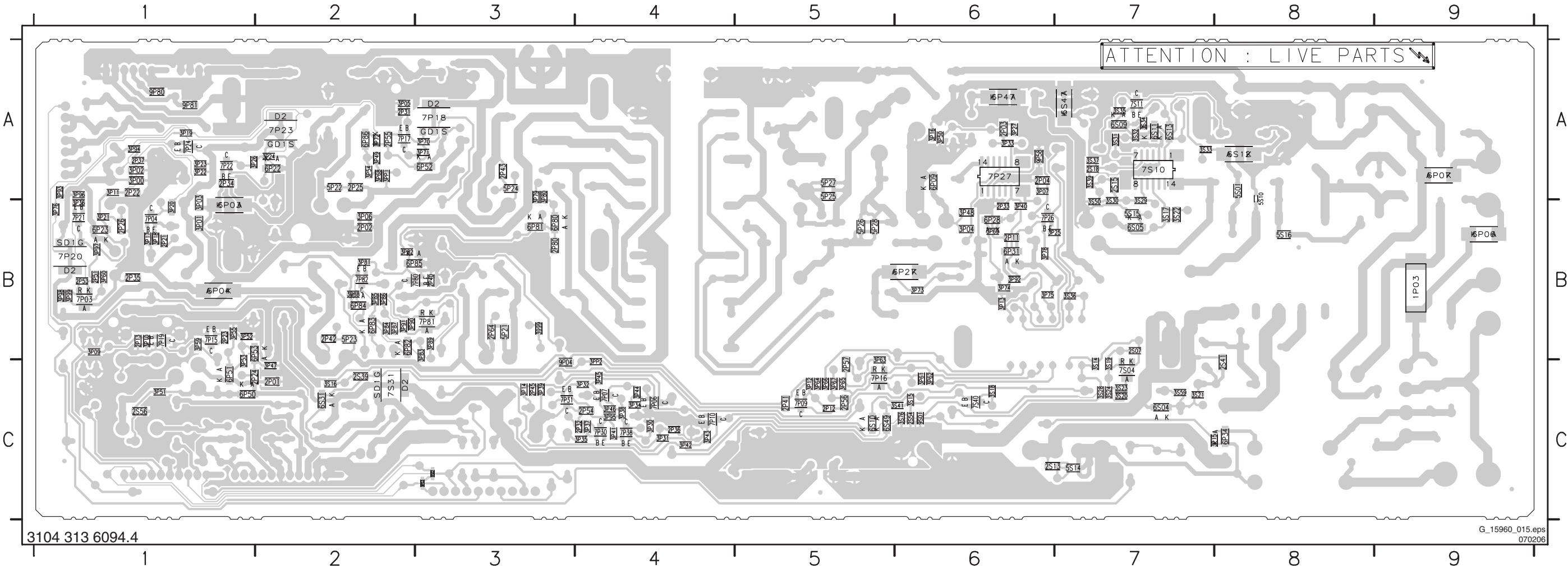


Layout Platform Supply (Top Side)

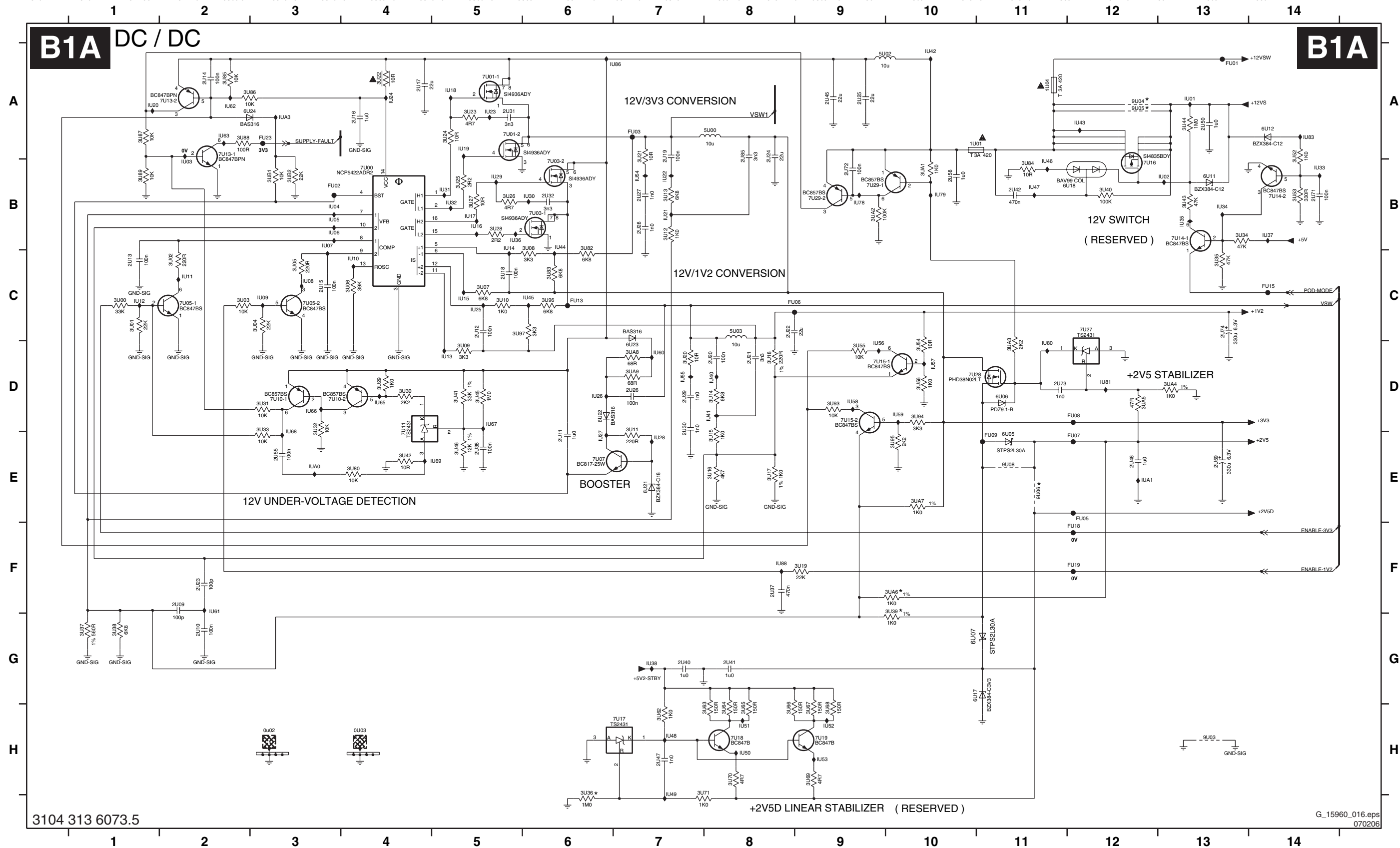


Layout Platform Supply (Top Side)

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SSB: RS232 Interface

B1C RS232 INTERFACE

B1C

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- 1U03 D8
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- 2U61 B3
- 2U63 C5
- 2U64 C6
- 2U65 C6
- 2U66 D5
- 3U72 A3
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- 3U76 B3
- 3U77 B3
- 3U79 D7
- 3U81 E7
- 3U90 D3
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- 3U92 E3
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- 3U99 D7
- 7U20 B3
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- 7U22 C5
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- 9U07 E2
- 9U13 B6
- 9U14 E6
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- IU00 D7
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- IU85 D6
- IU87 D5
- IU90 A3
- IU91 B3
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- IU93 C5
- IU94 C5
- IU95 D5
- IU96 D5
- IU97 D7
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- IU99 E5
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USE ONLY

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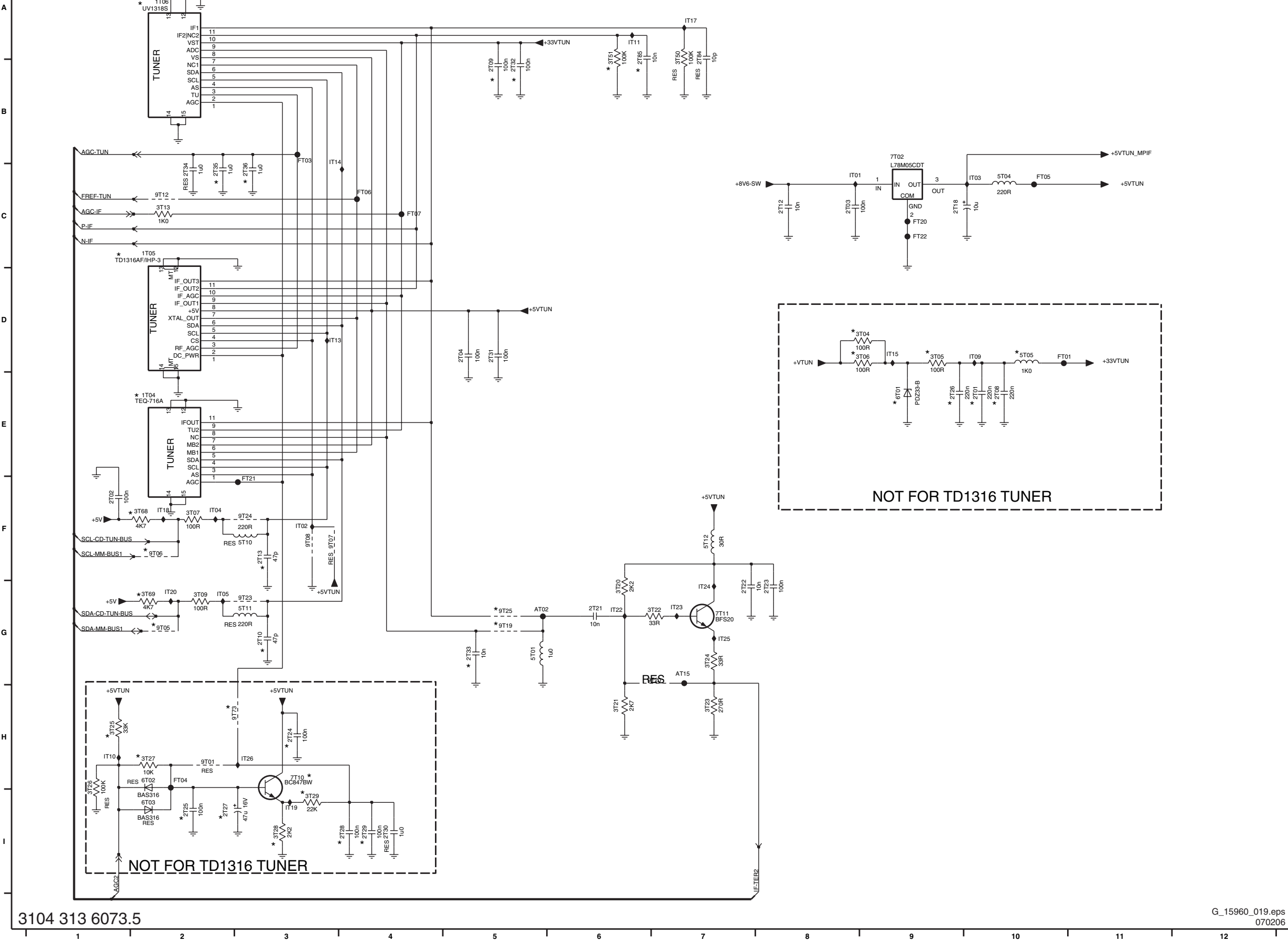


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B2A

DVB-T: TUNER

B2A



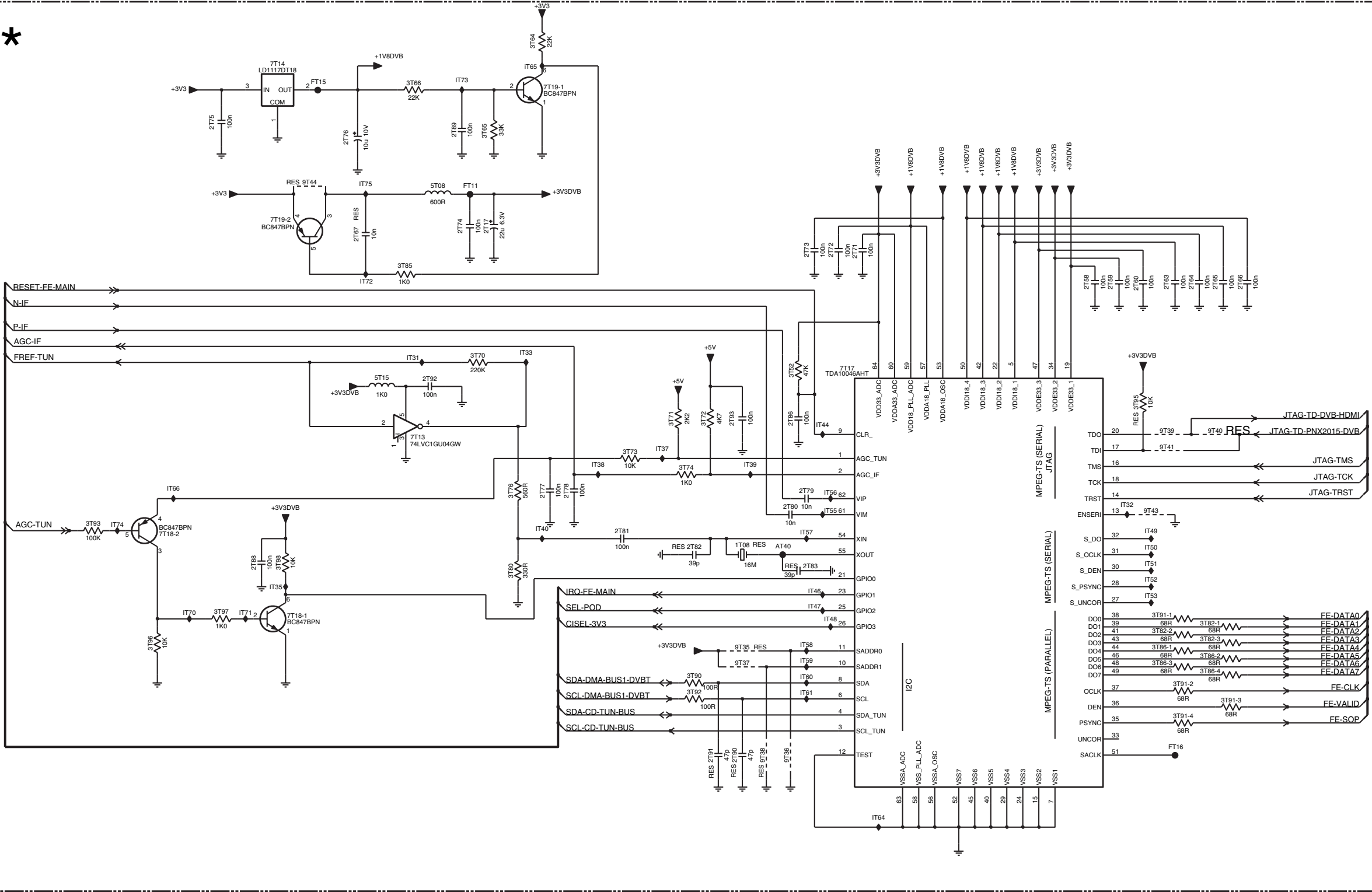
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SSB: DVB-T: Channel Decoder

B2B DVB-T: CHANNEL DECODER

B2B

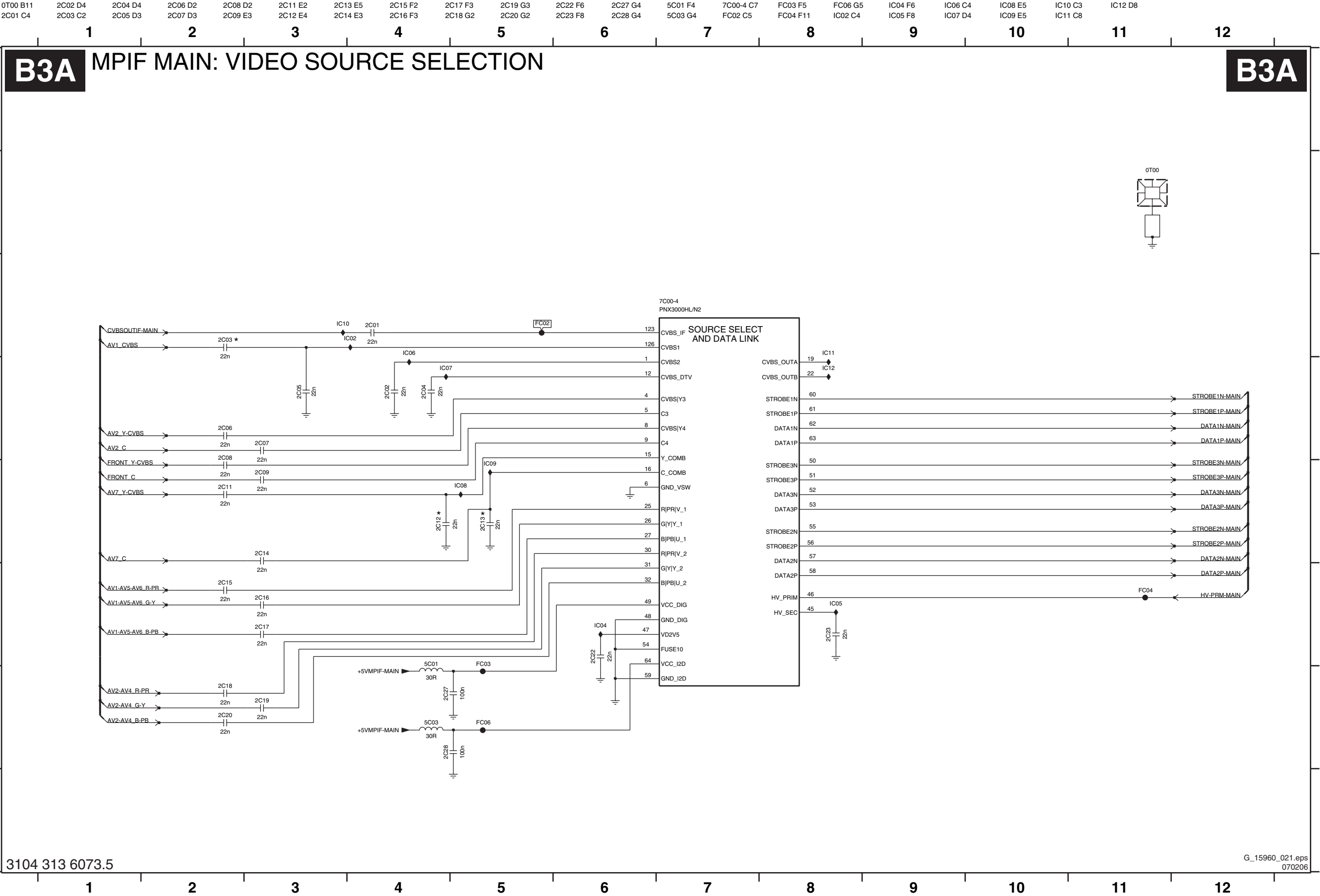
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- 7T19-2 C3
- 9T35 G7
- 9T36 H8
- 9T37 G7
- 9T38 H8
- 9T39 E11
- 9T40 E12
- 9T41 E11
- 9T43 F11
- 9T44 C4
- AT40 F8
- FT11 C5
- FT15 B4
- FT16 H11
- IT31 D5
- IT32 F11
- IT33 D6
- IT35 F3
- IT37 E7
- IT38 E6
- IT39 E8
- IT40 F6
- IT44 E8
- IT46 F8
- IT47 G8
- IT48 G8
- IT49 F11
- IT50 F11
- IT51 F11
- IT52 F11
- IT53 F11
- IT55 F8
- IT56 F8
- IT57 F8
- IT58 G8
- IT59 G8
- IT60 G8
- IT61 G8
- IT64 H9
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- IT71 G3
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- IT73 B5
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- IT75 C4
- IT65 B6

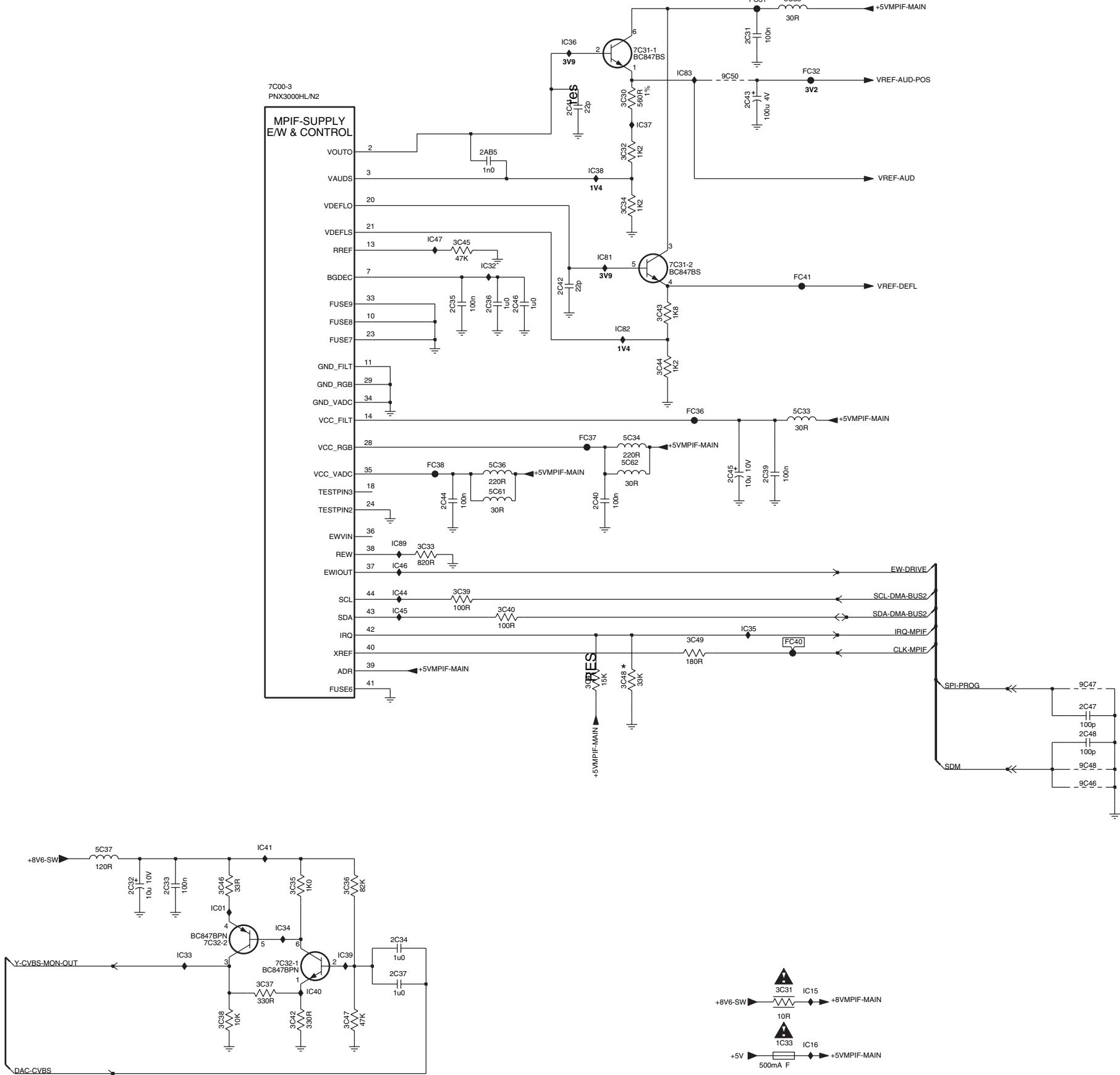
SSB: MPIF Main: Video Source Selection



SSB: MPIF Main: Supply

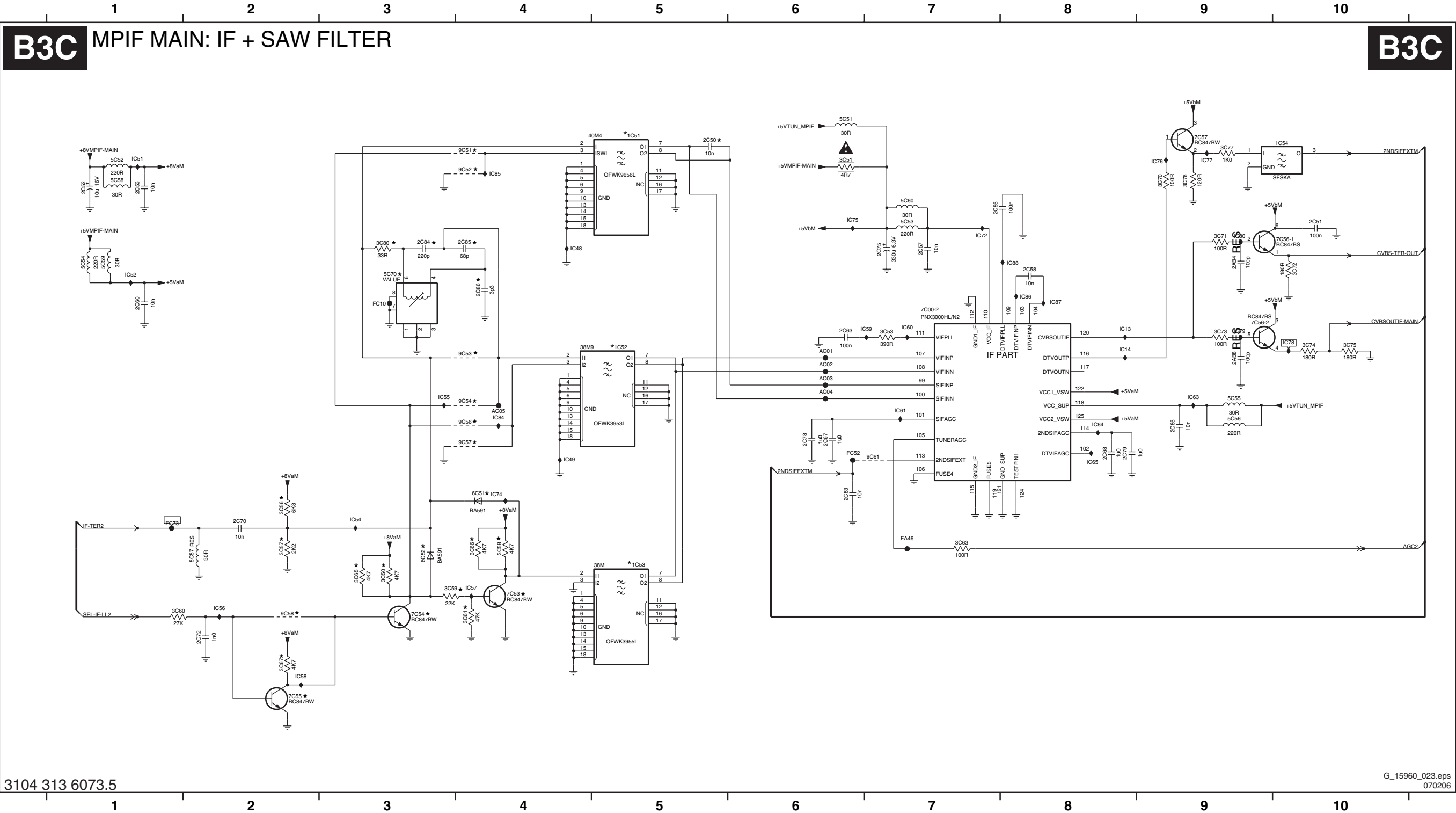
B3B MPIF MAIN: SUPPLY

B3B



SSB: MPIF Main: IF + SAW Filter

|          |          |         |         |         |         |         |         |         |         |          |          |         |         |         |           |            |         |         |         |         |         |         |         |         |         |         |          |         |
|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------|---------|---------|-----------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| 1C51 A5  | 2AB4 B9  | 2C52 A1 | 2C58 B8 | 2C67 C6 | 2C75 B7 | 2C84 B3 | 3C51 A6 | 3C58 D4 | 3C63 D7 | 3C70 A9  | 3C74 C10 | 3C80 B3 | 5C54 B1 | 5C58 A1 | 6C51 D4   | 7C54 E3    | 7C57 A9 | 9C54 C4 | 9C61 C7 | AC04 C6 | FC52 C6 | IC48 B4 | IC54 D3 | IC58 E2 | IC63 C9 | IC74 D4 | IC78 C10 | IC85 A4 |
| 1C52 C5  | 2AB8 C9  | 2C53 A1 | 2C60 B1 | 2C68 C8 | 2C78 C6 | 2C85 B4 | 3C53 B7 | 3C59 D3 | 3C65 D3 | 3C71 B9  | 3C75 C10 | 5C51 A6 | 5C55 C9 | 5C59 B1 | 6C52 D3   | 7C55 E2    | 9C51 A4 | 9C56 C4 | AC01 C6 | AC05 C4 | FC73 D1 | IC49 C4 | IC55 C3 | IC59 B7 | IC64 C8 | IC75 B6 | IC79 B9  | IC86 B8 |
| 1C53 D5  | 2C50 A5  | 2C55 B7 | 2C63 B6 | 2C70 D2 | 2C79 C8 | 2C86 B4 | 3C56 D2 | 3C60 E1 | 3C66 D4 | 3C72 B10 | 3C76 A9  | 5C52 A1 | 5C56 C9 | 5C60 A7 | 7C00-2 B7 | 7C56-1 B10 | 9C52 A4 | 9C57 C4 | AC02 C6 | FA46 D7 | IC13 B8 | IC56 D2 | IC60 B7 | IC65 C2 | IC76 A9 | IC80 B9 | IC87 B8  |         |
| 1C54 A10 | 2C51 B10 | 2C57 B7 | 2C65 C9 | 2C72 E2 | 2C83 D6 | 3C50 D3 | 3C57 D2 | 3C61 E4 | 3C67 E2 | 3C73 B9  | 3C77 A9  | 5C53 B7 | 5C57 D2 | 5C70 B3 | 7C53 D4   | 7C56-2 B9  | 9C53 C4 | 9C58 E2 | AC03 C6 | FC10 B3 | IC14 C8 | IC52 B1 | IC57 D4 | IC61 C7 | IC72 B7 | IC77 A9 | IC84 C4  | IC88 B8 |



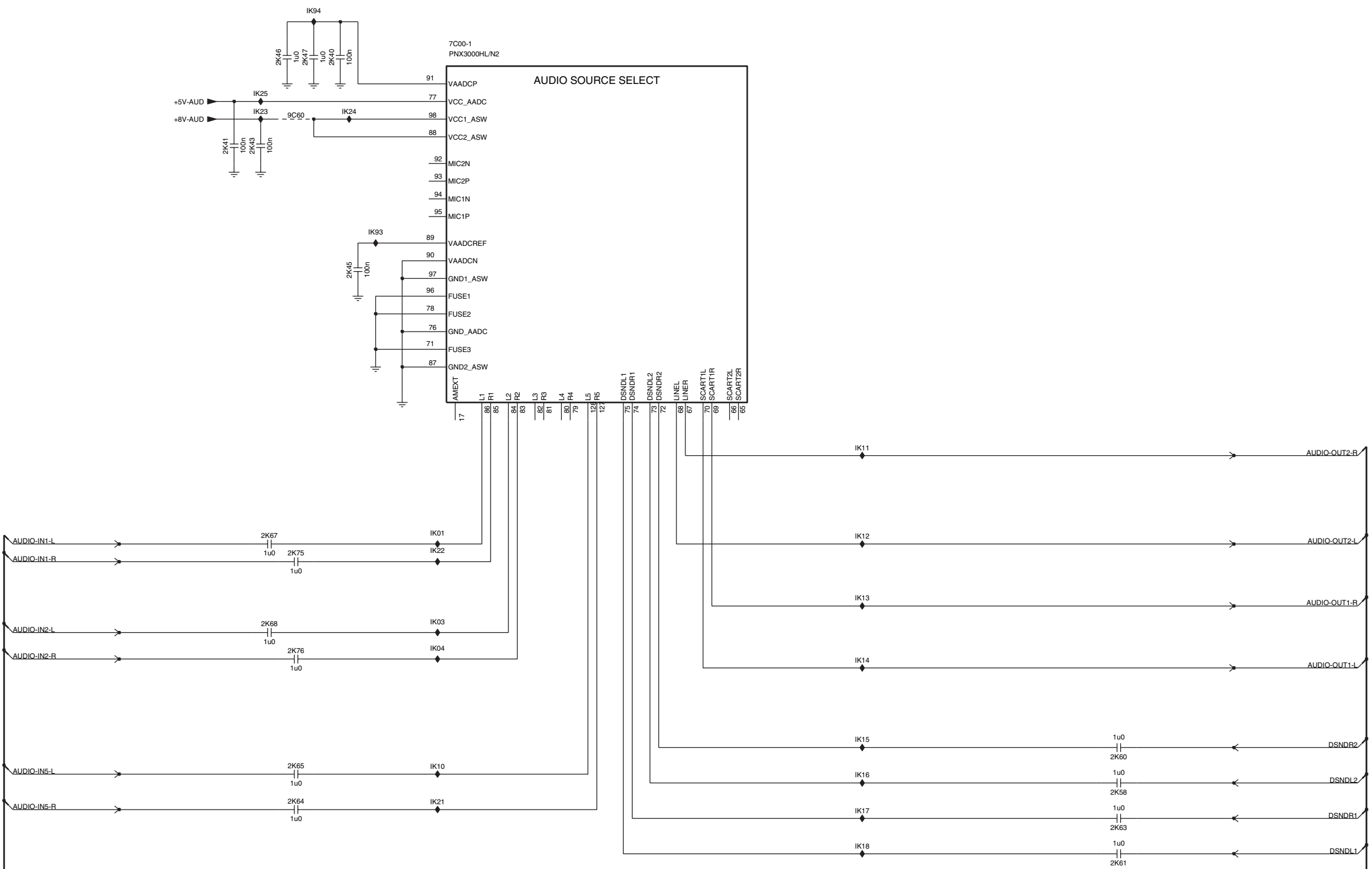


SSB: MPIF Main: Audio Source Selection

B3D

MPIF MAIN: AUDIO SOURCE SELECTION

B3D

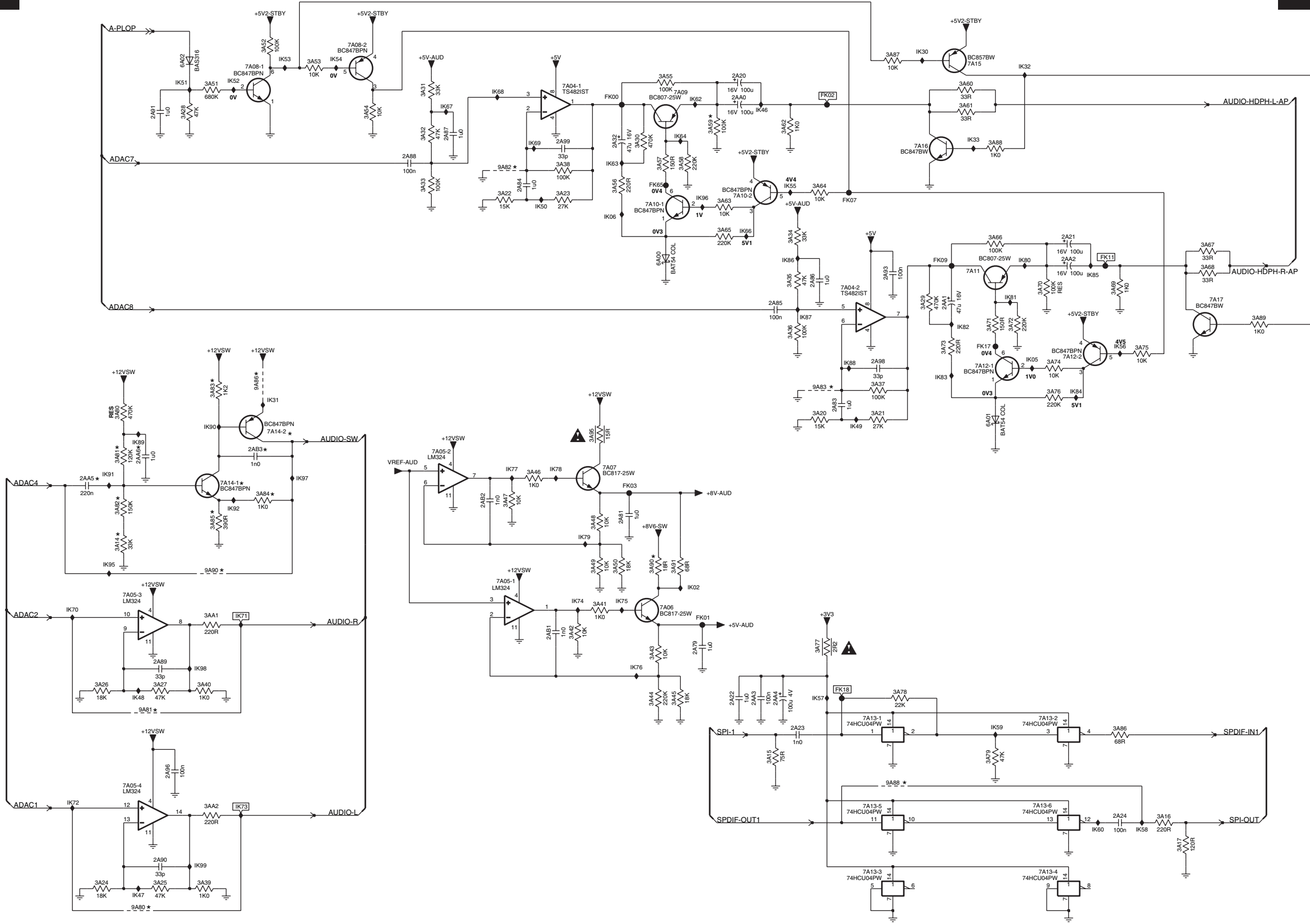


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- 2K41 C3
- 2K43 C3
- 2K45 D4
- 2K46 C3
- 2K47 C3
- 2K58 H10
- 2K60 H10
- 2K61 I10
- 2K63 I10
- 2K64 I3
- 2K65 H3
- 2K67 F3
- 2K68 G3
- 2K75 G3
- 2K76 G3
- 7C00-1 B5
- 9C60 C3
- IK01 F4
- IK03 G4
- IK04 G4
- IK10 H4
- IK11 F8
- IK12 F8
- IK13 G8
- IK14 G8
- IK15 H8
- IK16 H8
- IK17 I8
- IK18 I8
- IK21 I4
- IK22 G4
- IK23 C3
- IK24 C4
- IK25 C3
- IK93 D4
- IK94 B3

SSB: MPIF Main: Audio

B3E MPIF MAIN: AUDIO

B3E

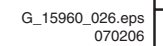


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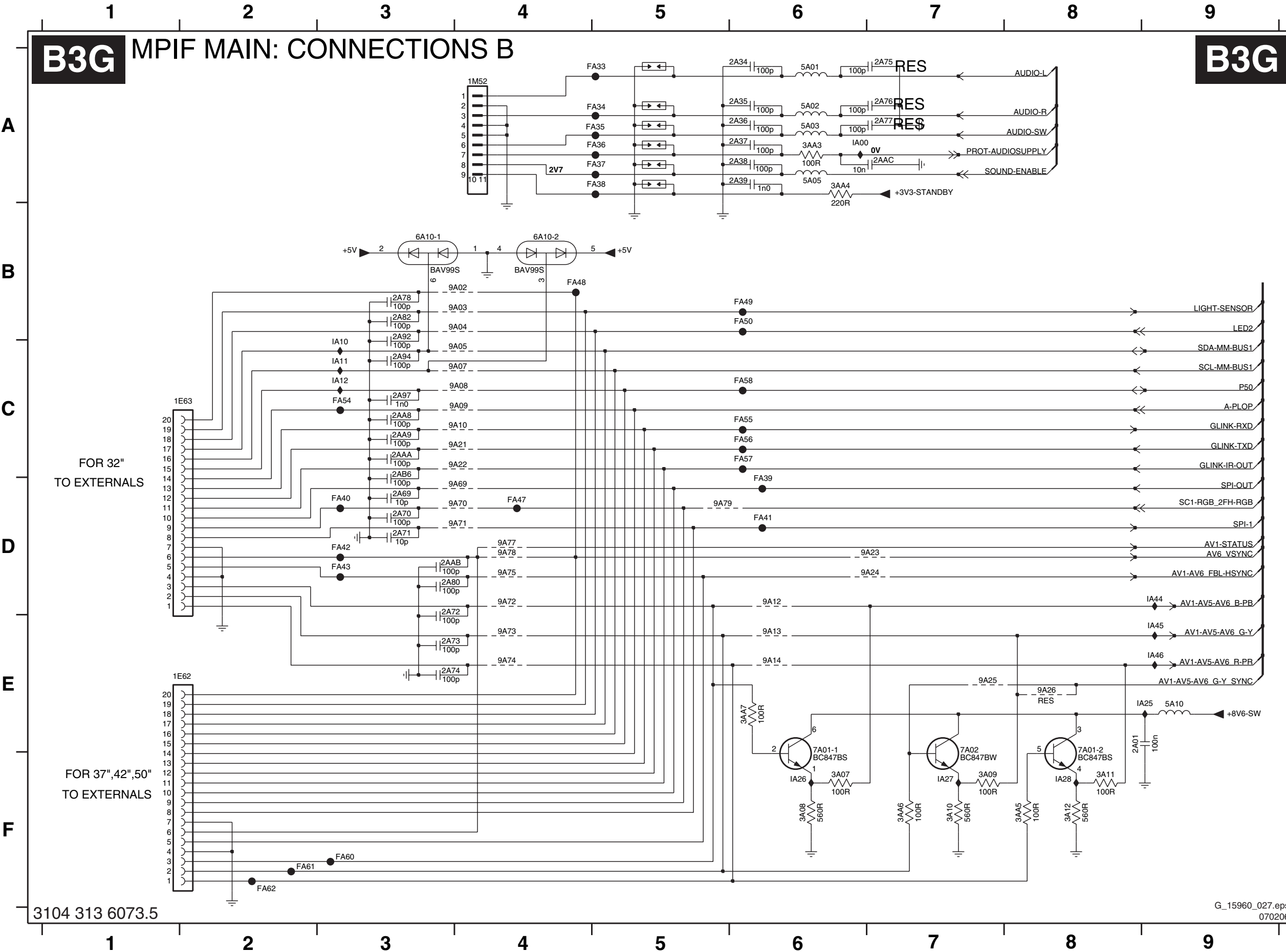
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- 2A22 G8
- 2A23 H9
- 2A24 H12
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- 2A79 G8
- 2A81 F7
- 2A83 D9
- 2A84 B6
- 2A85 C9
- 2A86 C9
- 2A88 B5
- 2A89 G3
- 2A90 I3
- 2A91 B3
- 2A93 C10
- 2A96 H3
- 2A98 D10
- 2A99 B7
- 2AA0 A8
- 2AA1 C10
- 2AA2 C12
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- 2AA4 G9
- 2AA5 E2
- 2AA6 E3
- 2AB1 G7
- 2AB2 E6
- 2AB3 E4
- 3A14 F2
- 3A15 H9
- 3A16 I13
- 3A17 I13
- 3A20 E9
- 3A21 E10
- 3A22 B6
- 3A23 B7
- 3A24 I2
- 3A25 I3
- 3A26 G2
- 3A27 G3
- 3A28 B3
- 3A29 C10
- 3A30 B7
- 3A31 A5
- 3A32 B5
- 3A33 B5
- 3A34 C9
- 3A35 C9
- 3A36 D8
- 3A37 D10
- 3A38 B7
- 3A39 I3
- 3A40 G3
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- 3A42 G7
- 3A43 G8
- 3A44 G8
- 3A45 G8
- 3A46 E6
- 3A47 E6
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- 3A64 B9
- 3A65 C8
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- 3A67 C13
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- 3A95 E7
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- 3AA2 H3
- 6A00 C8
- 6A01 E11
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- 7A04-1 A7
- 7A04-2 C9
- 7A05-1 F6
- 7A05-2 E5
- 7A05-3 F2
- 7A05-4 H2
- 7A06 F8
- 7A07 E7
- 7A08-1 A4
- 7A08-2 A5
- 7A09 A8
- 7A10-1 C8
- 7A10-2 B9
- 7A11 C11
- 7A12-1 D11
- 7A12-2 D12
- 7A13-1 H10
- 7A13-2 H11
- 7A13-3 I10
- 7A13-4 I11
- 7A13-5 H10
- 7A13-6 H11
- 7A14-1 E3
- 7A14-2 E4
- 7A15 A11
- 7A16 B10
- 7A17 C13
- 9A80 I3
- 9A81 G3
- 9A82 B6
- 9A83 D9
- 9A86 D4
- 9A88 H10
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- FK02 A9
- FK03 E7
- FK07 B9
- FK09 C10
- FK11 C12
- FK17 D11
- FK18 G9
- FK65 B8
- IK02 F8
- IK05 D11
- IK06 C7
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- IK64 B8
- IK66 C8
- IK67 B6
- IK68 A6
- IK69 B6
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- IK72 H2
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- IK75 F7
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- IK78 E7
- IK79 F7
- IK80 C11
- IK81 C11
- IK82 D11
- IK88 D9
- IK89 E3
- IK90 E3
- IK91 E2
- IK92 E3
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- IK96 B8
- IK97 E4
- IK98 G3
- IK99 I3

**B3F** MPIF MAIN: CONNECTIONS A

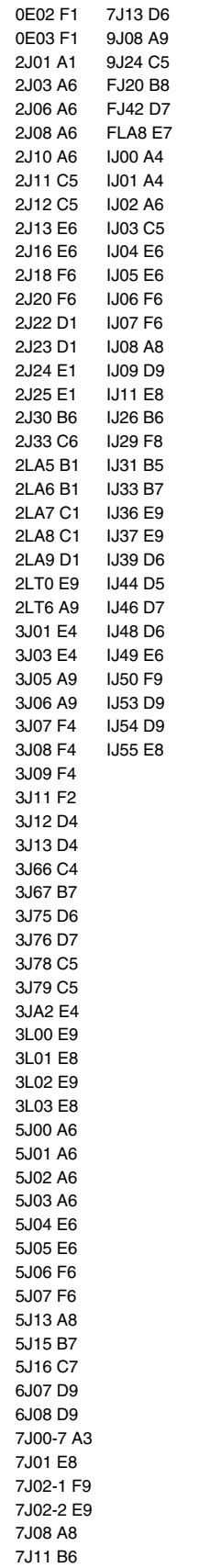


SSB: MPIF Main: Connections B



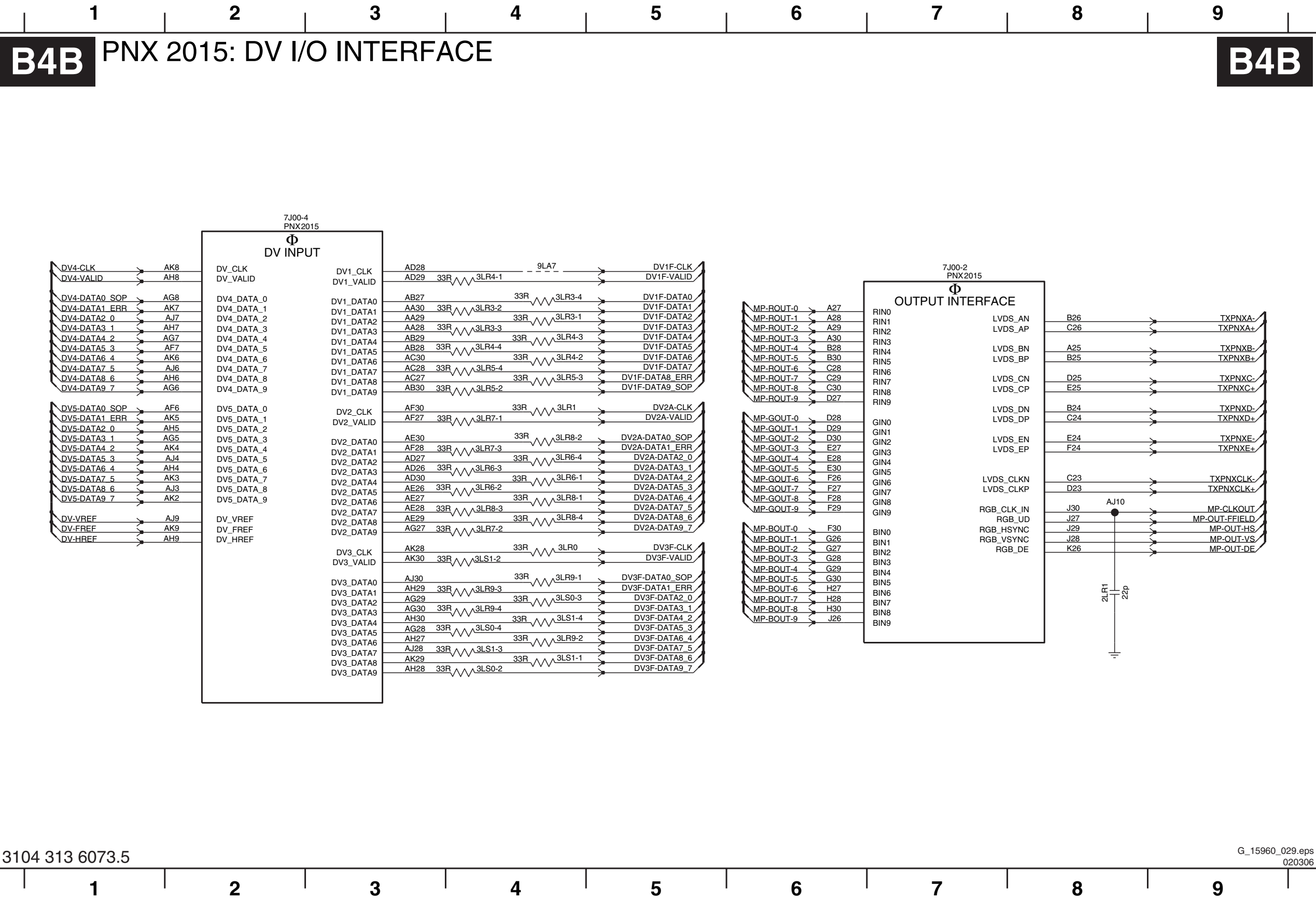
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| 1M52 A4   | 9A69 D4 |
| 2A01 E8   | 9A70 D4 |
| 2A34 A6   | 9A71 D4 |
| 2A35 A6   | 9A72 D4 |
| 2A36 A6   | 9A73 E4 |
| 2A37 A6   | 9A74 E4 |
| 2A38 A6   | 9A75 D4 |
| 2A39 A6   | 9A77 D4 |
| 2A69 D3   | 9A78 D4 |
| 2A70 D3   | 9A79 D5 |
| 2A71 D3   | FA33 A5 |
| 2A72 D3   | FA34 A5 |
| 2A73 E3   | FA35 A5 |
| 2A74 E3   | FA36 A5 |
| 2A75 A7   | FA37 A5 |
| 2A76 A7   | FA38 A5 |
| 2A77 A7   | FA39 D6 |
| 2A78 B3   | FA40 D3 |
| 2A80 D3   | FA41 D6 |
| 2A82 B3   | FA42 D3 |
| 2A92 B3   | FA43 D3 |
| 2A94 C3   | FA47 D4 |
| 2A97 C3   | FA48 B4 |
| 2AA8 C3   | FA49 B6 |
| 2AA9 C3   | FA50 B6 |
| 2AAA C3   | FA54 C3 |
| 2AAB D3   | FA55 C6 |
| 2AAC A7   | FA56 C6 |
| 2AB6 C3   | FA57 C6 |
| 3A07 F6   | FA58 C6 |
| 3A08 F6   | FA60 F3 |
| 3A09 F7   | FA61 F2 |
| 3A10 F7   | FA62 F2 |
| 3A11 F8   | IA00 A6 |
| 3A12 F8   | IA10 C3 |
| 3AA3 A6   | IA11 C3 |
| 3AA4 A6   | IA12 C3 |
| 3AA5 F8   | IA25 E9 |
| 3AA6 F7   | IA26 F6 |
| 3AA7 E6   | IA27 F7 |
| 5A01 A6   | IA28 F8 |
| 5A02 A6   | IA44 D9 |
| 5A03 A6   | IA45 E9 |
| 5A05 A6   | IA46 E9 |
| 5A10 E9   |         |
| 6A10-1 B3 |         |
| 6A10-2 B4 |         |
| 7A01-1 F6 |         |
| 7A01-2 F8 |         |
| 7A02 F7   |         |
| 9A02 B4   |         |
| 9A03 B4   |         |
| 9A04 B4   |         |
| 9A05 C4   |         |
| 9A07 C4   |         |
| 9A08 C4   |         |
| 9A09 C4   |         |
| 9A10 C4   |         |
| 9A12 D6   |         |
| 9A13 E6   |         |
| 9A14 E6   |         |
| 9A21 C4   |         |
| 9A22 C4   |         |
| 9A23 D7   |         |
| 9A24 D7   |         |

**B4A** PNX2015: AUDIO / VIDEO





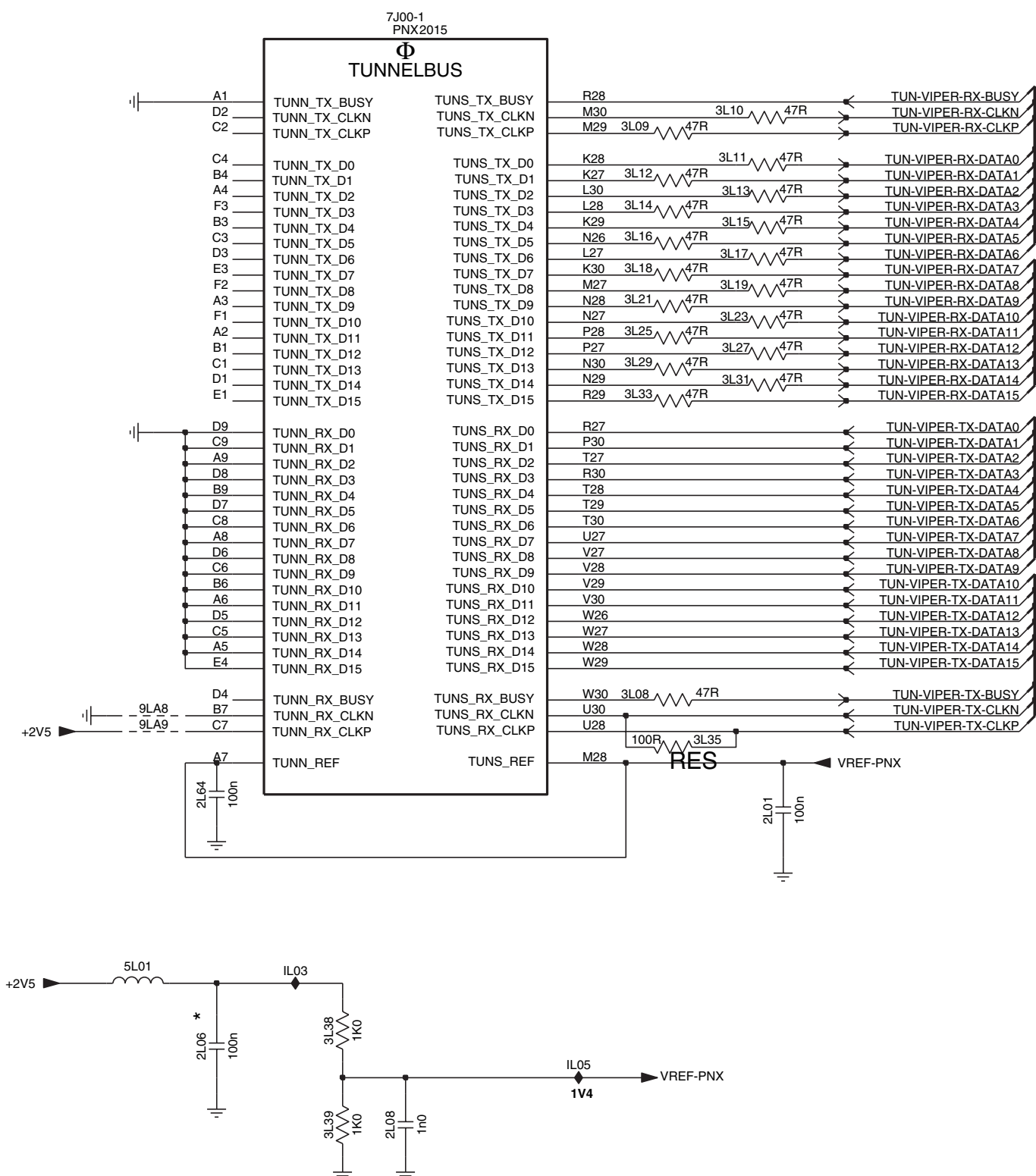
SSB: PNX2015: DV I/O Interface



SSB: PN2015: Tunnel Bus

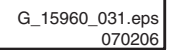
B4C PN2015: TUNNELBUS

B4C



- 2L01 E5
- 2L06 F2
- 2L07 F3
- 2L08 F3
- 2L64 E2
- 3L08 D4
- 3L09 B4
- 3L10 B4
- 3L11 B4
- 3L12 B4
- 3L13 B4
- 3L14 B4
- 3L15 B4
- 3L16 B4
- 3L17 B4
- 3L18 B4
- 3L19 B4
- 3L21 B4
- 3L23 B4
- 3L25 C4
- 3L27 C4
- 3L29 C4
- 3L31 C4
- 3L33 C4
- 3L35 D4
- 3L38 F3
- 3L39 F3
- 5L01 E2
- 7J00-1 A3
- 9LA8 D2
- 9LA9 D2
- IL03 E3
- IL05 F4

## B4D PNX 2015: DDR INTERFACE

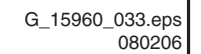


**B4E** PNX 2015: STANDBY & CONTROL



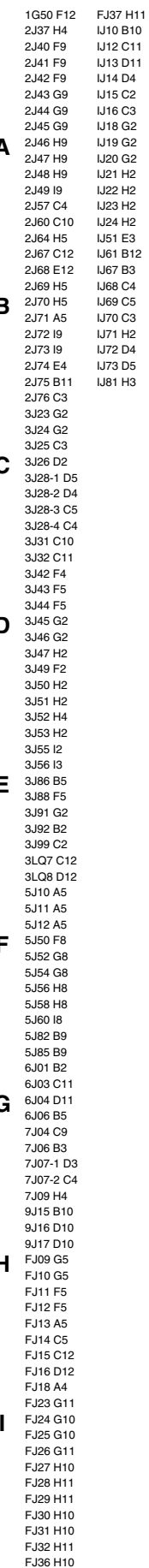
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| 1L0A17     | 3LM5 B4    | IL35 F7  |
| 1L2A D10   | 3LM5 B4    | IL40 C11 |
| 1L2A F11   | 3UM6 B4    | IL41 B12 |
| 1L2A F12   | 3UM6 B4    | IL42 C12 |
| 1L2B11     | 3UM0 C4    | IL43 C11 |
| 1L2B31     | 3UM1 C4    | ILB3 D4  |
| 1L2B42     | 3UM2 C4    | ILB5 E11 |
| 1L2B54     | 3UM3 C4    | ILB6 D11 |
| 1L2B65     | 3UM4 C4    | ILB7 F11 |
| 1L2B71     | 3UM5 C4    | ILB8 E8  |
| 1L2B814    | 3UM6 C4    | ILB9 C1  |
| 1L2T1 H7   | 3UM7 C4    | ILC2 C11 |
| 1L2T2 I7   | 3UM8 C7    | ILC2 B2  |
| 1L2T3 G3   | 3UM9 C1    |          |
| 1L2T4 H3   | 3UM10 C1   |          |
| 1L2T5 I3   | 3UM13 A11  |          |
| 1L33 F6    | 3L54 A11   |          |
| 1L33 F7    | 3L55 B11   |          |
| 1L3A A1    | 3L57 A12   |          |
| 1L3A A2    | 3L57 A12   |          |
| 1L3A A1    | 3L58 B11   |          |
| 1L3A A1    | 3L59 B12   |          |
| 1L4A B1    | 3L70 C11   |          |
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| 1L4A B2    | 3L74 H7    |          |
| 1L4A B3    | 3L75 H7    |          |
| 1L4B1 E3   | 3L76 H8    |          |
| 1L4B3 E3   | 3L77 H8    |          |
| 1L4B3 E3   | 3L78 H6    |          |
| 1L4B3 E3   | 3L79 H8    |          |
| 1L4B3 E3   | 3L80 B8    |          |
| 1L4B6 D7   | 3L81 I7    |          |
| 1L5B7 A8   | 3L82 I7    |          |
| 1L5B8 B8   | 3L83 G6    |          |
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| 1L5C8 B8   | 3L85 G6    |          |
| 1L6C1 E1   | 3L86 G2    |          |
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| 1L6C3 B1   | 3L88 G1    |          |
| 1L6C4 B1   | 3L89 H1    |          |
| 1L6D1 B1   | 3L90 H1    |          |
| 1L6C6 B1   | 3L91 H2    |          |
| 1L6C7 B1   | 3L92 H2    |          |
| 1L6C8 E1   | 3L93 H4    |          |
| 1L6D1 B1   | 3L94 I4    |          |
| 1L6D2 B1   | 3L95 I2    |          |
| 1L6D1 C1   | 3L96 I2    |          |
| 1L6D2 B4   | 3L97 I1    |          |
| 1L6D3 D1   | 3L98 I1    |          |
| 1L6D4 D1   | 3L99 D11   |          |
| 1L6D5 D1   | 3L99 C7    |          |
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| 1L6D7 D1   | 6L00 I2    |          |
| 1L6D8 D1   | 6L01 H2    |          |
| 1L6D9 D1   | 6L02 G2    |          |
| 1L6D10     | 6L03 H8    |          |
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| 1L6E7 D1   | 7L43-2 C12 |          |
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| 1L6E9 D1   | 7L45 H11   |          |
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| 1L7 F1 A7  | 7L80 I3    |          |
| 1L7 F2 D6  | 7L81 H3    |          |
| 1L7 F3 H13 | 7L82 G3    |          |
| 1L7 F4 D6  | 7L83 H3    |          |
| 1L7 F5 I13 | 7L84 H6    |          |
| 1L7 F6 I13 | 7L85 H7    |          |
| 1L7 F8 E13 | 7L86 F7    |          |
| 1L7 F9 E6  | 7L87 F8    |          |
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| 1L7 G3 B4  | 9L41 F10   |          |
| 1L7 G4 C1  | 9L42 E10   |          |
| 1L7 G5 B4  | 9L43 F10   |          |
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| 1L7 G8 B4  | 9L45 G7    |          |
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| 1L9H7 B7   | FLA2 D8    |          |
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| 1L9K2 D4   | IL13 A11   |          |
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| 1L9K6 D4   | IL17 C10   |          |
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| 1L9K8 D4   | IL19 H13   |          |
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| 1L9L1 E4   | IL22 G3    |          |
| 1L9L2 E4   | IL23 H2    |          |
| 1L9L3 E4   | IL24 H2    |          |
| 1L9L4 E4   | IL25 H3    |          |
| 1L9L5 E4   | IL26 I2    |          |
| 1L9L6 E4   | IL27 I2    |          |
| 1L9L7 E4   | IL28 I3    |          |
| 1L9L8 D11  | IL29 H6    |          |
| 1L9L9 E11  | IL30 H7    |          |
| 1L9M0 A4   | IL31 H7    |          |
| 1L9M1 A4   | IL32 H7    |          |

**B4F** PNX 2015: SUPPLY



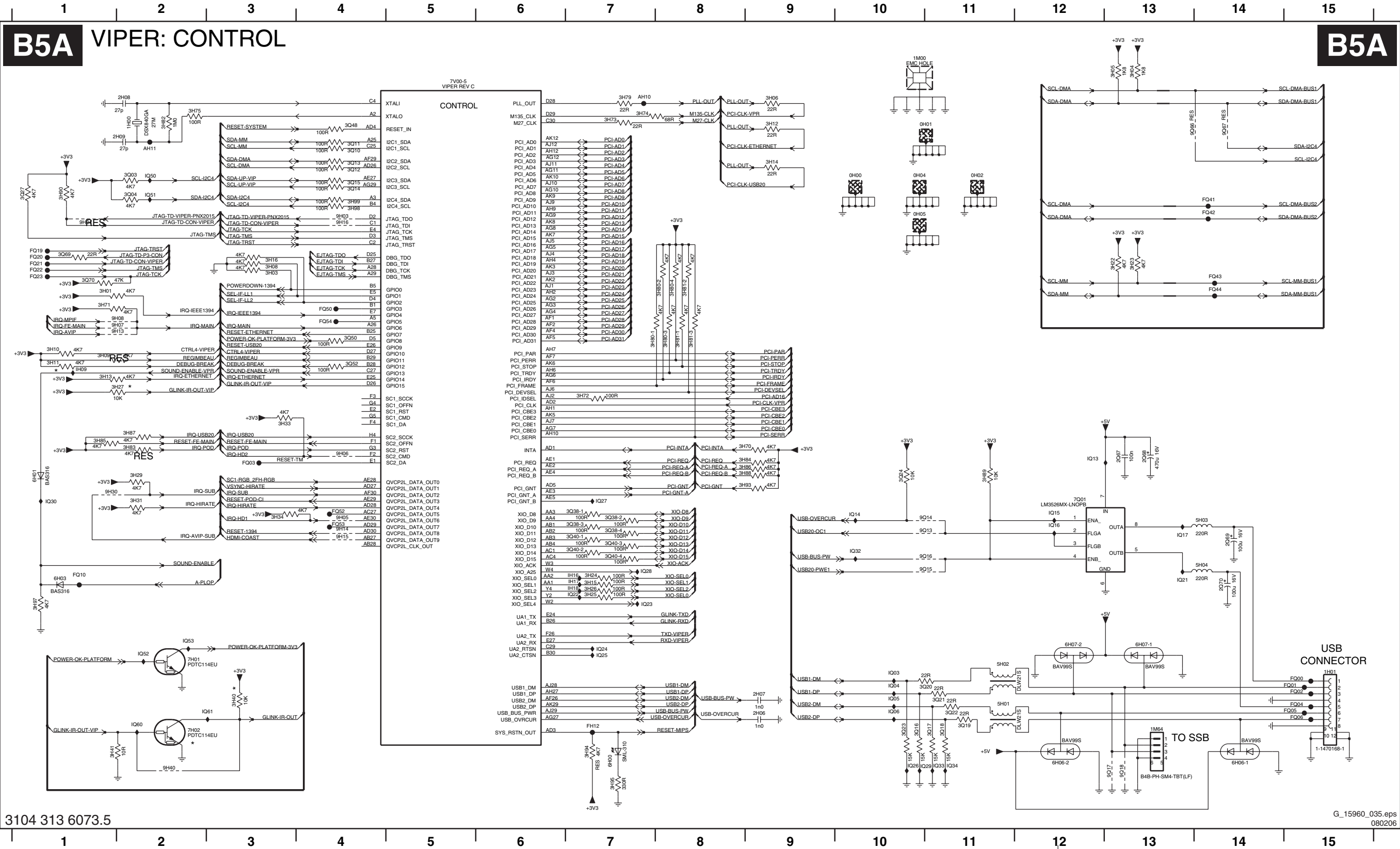


## B4G PNX 2015: DISPLAY INTERFACE



SSB: Viper: Control

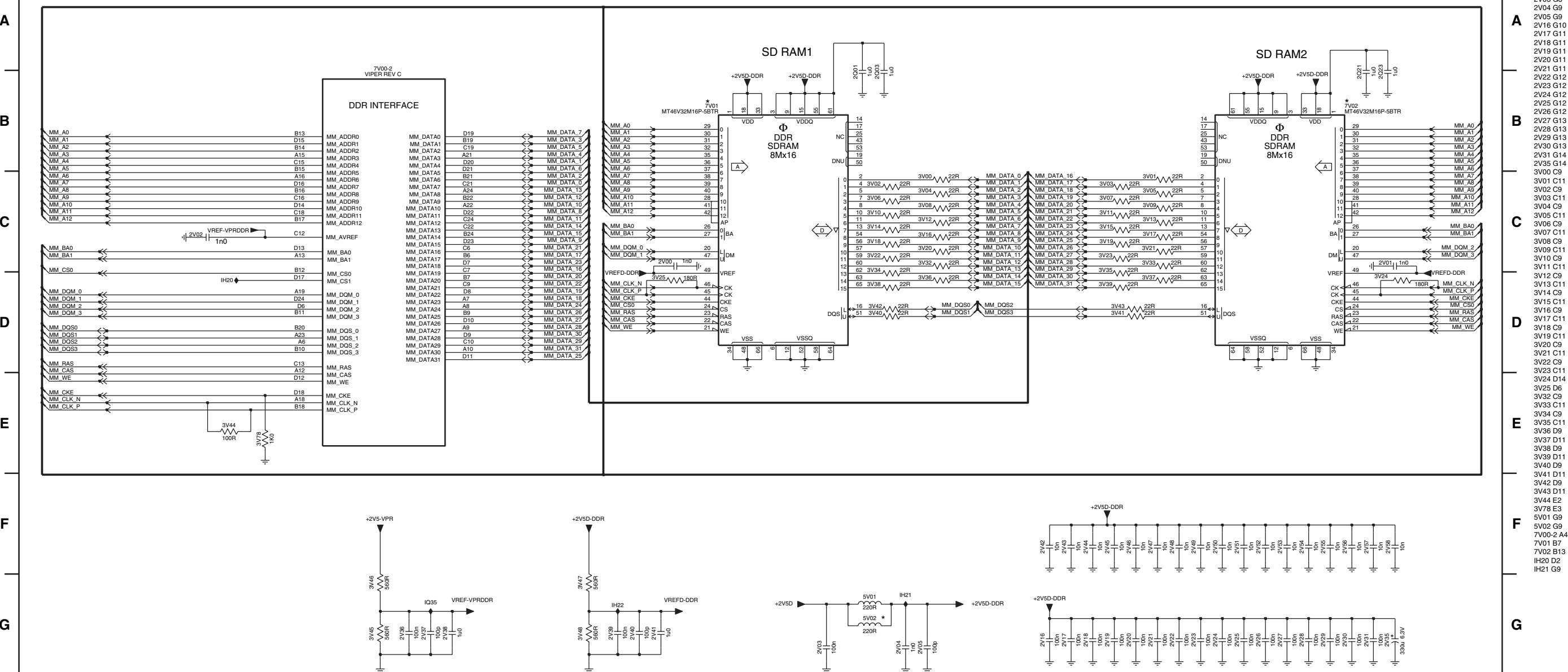
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|----------|----------|----------|---------|----------|---------|---------|-----------|-----------|----------|---------|----------|-----------|-----------|----------|------------|------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|
| 0H00 B10 | 1M00 A10 | 2C68 E13 | 3H06 A9 | 3H14 B9  | 3H26 F7 | 3H41 H1 | 3H79 A7   | 3H81-3 D8 | 3H88 E8  | 3H98 B4 | 3Q12 B4  | 3Q20 G11  | 3Q38-2 F7 | 3Q48 A4  | 5H03 F14   | 6H07-1 G13 | 9H04 B1 | 9H15 F4  | 9Q16 F11 | FH12 H7  | FQ06 H15 | FQ41 B14 | FQ54 C4  | IQ05 H10 | IQ21 F13 | IQ28 F7  | IQ51 B2 |
| 0H01 A11 | 1M64 H13 | 2Q69 F14 | 3H08 C3 | 3H15 F7  | 3H27 D2 | 3H70 E8 | 3H80-1 D7 | 3H82 A2   | 3H89 E11 | 3H99 B4 | 3Q14 B4  | 3Q21 H11  | 3Q38-3 F7 | 3Q50 D4  | 5H04 F14   | 6H07-2 G12 | 9H05 F4 | 9H16 B4  | 9Q17 H13 | FQ00 G15 | FQ10 F1  | FQ42 B14 | IH09 D1  | IQ06 H10 | IQ22 F7  | IQ29 H11 | IQ52 G2 |
| 0H02 B11 | 2H06 H9  | 2Q70 F14 | 3H09 D1 | 3H16 C3  | 3H29 E2 | 3H71 C1 | 3H80-2 C8 | 3H83 E2   | 3H90 B1  | 3Q03 B2 | 3Q15 B4  | 3Q22 H11  | 3Q38-4 F7 | 3Q52 D4  | 6H00 H7    | 7H01 G2    | 9H06 E4 | 9H30 E1  | 9Q18 H13 | FQ01 G15 | FQ19 C1  | FQ43 B14 | IH16 F7  | IQ13 E12 | IQ23 F7  | IQ30 E1  | IQ53 G2 |
| 0H04 B10 | 2H07 H9  | 3H01 C1  | 3H10 D1 | 3H22 C13 | 3H31 E2 | 3H72 D7 | 3H80-3 D8 | 3H84 E8   | 3H93 E8  | 3Q04 B2 | 3Q16 H10 | 3Q23 H10  | 3Q40-1 F7 | 3Q69 C1  | 6H01 E1    | 7H02 H2    | 9H07 C2 | 9H40 H2  | 9Q66 A13 | FQ02 G15 | FQ20 C1  | FQ44 C14 | IH17 F7  | IQ14 E10 | IQ24 G7  | IQ32 F10 | IQ60 H2 |
| 0H05 B10 | 2H08 A2  | 3H03 C3  | 3H11 D1 | 3H23 C13 | 3H33 D3 | 3H73 A7 | 3H80-4 C8 | 3H85 E1   | 3H94 H7  | 3Q10 A4 | 3Q17 H11 | 3Q24 E10  | 3Q40-2 F7 | 3Q70 C1  | 6H03 F1    | 7Q01 E12   | 9H08 C2 | 9Q13 F11 | 9Q67 A14 | FQ03 E3  | FQ21 C1  | FQ50 D4  | IH18 F7  | IQ15 E12 | IQ25 G7  | IQ33 H11 | IQ61 H3 |
| 1H00 A2  | 2H09 A2  | 3H04 A13 | 3H12 A9 | 3H24 F7  | 3H34 E3 | 3H74 A7 | 3H81-1 D8 | 3H86 H7   | 3H95 H7  | 3Q11 A4 | 3Q18 H11 | 3Q27 B1   | 3Q40-3 F7 | 5H01 H11 | 6H06-1 H14 | 7V00-5 A5  | 9H13 C2 | 9Q14 F11 | AH10 A7  | FQ04 H15 | FQ22 C1  | FQ52 E4  | IQ03 G10 | IQ16 F12 | IQ26 H10 | IQ34 H11 |         |
| 1H01 G15 | 2Q67 E13 | 3H05 A13 | 3H13 D1 | 3H25 F7  | 3H40 H3 | 3H75 A2 | 3H81-2 C8 | 3H87 E2   | 3H97 F1  | 3Q12 B4 | 3Q19 H11 | 3Q38-1 E7 | 3Q40-4 F7 | 5H02 G11 | 6H06-2 H12 | 9H03 B4    | 9H14 F4 | 9Q15 F11 | AH11 A2  | FQ05 H15 | FQ23 C1  | FQ53 F4  | IQ04 G10 | IQ17 F13 | IQ27 E7  | IQ35 B2  |         |



SSB: Viper: Main Memory

B5B VIPER: MAIN MEMORY

B5B

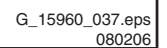


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- 2Q01 B8
- 2Q03 B9
- 2Q21 B13
- 2Q23 B14
- 2V00 C7
- 2V01 C14
- 2V02 C2
- 2V03 G8
- 2V04 G9
- 2V05 G9
- 2V16 G10
- 2V17 G11
- 2V18 G11
- 2V19 G11
- 2V20 G11
- 2V21 G11
- 2V22 G12
- 2V23 G12
- 2V24 G12
- 2V25 G12
- 2V26 G12
- 2V27 G13
- 2V28 G13
- 2V29 G13
- 2V30 G13
- 2V31 G14
- 2V35 G14
- 3V00 C9
- 3V01 C11
- 3V02 C9
- 3V03 C11
- 3V04 C9
- 3V05 C11
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- 3V20 C9
- 3V21 C11
- 3V22 C9
- 3V23 C11
- 3V24 D14
- 3V25 D6
- 3V32 C9
- 3V33 C11
- 3V34 C9
- 3V35 C11
- 3V36 D9
- 3V37 D11
- 3V38 D9
- 3V39 D11
- 3V40 D9
- 3V41 D11
- 3V42 D9
- 3V43 D11
- 3V44 E2
- 3V78 E3
- 5V01 G9
- 5V02 G9
- 7V00-2 A4
- 7V01 B7
- 7V02 B13
- IH20 D2
- IH21 G9

# VIPER: A/V + TUNNELBUS



2H00 H3  
2H01 H6  
2H02 H3  
2H03 H2  
2H11 C12  
2H12 D12  
2H13 D12  
2Q25 C12  
2Q29 B12  
2Q31 C12  
3H02 C9  
3H07 E8  
3H18 C3  
3H21 D10  
3H21 D9  
3H28 B3  
3H32 B3  
3H48 G9  
3H49 F9  
3H50 H3  
3H51 H3  
3H92 D11  
3Q00 B11  
3Q01 D11  
3Q05 C1 C9  
3Q05 C2 C8  
3Q05 C3 C9  
3Q05 C4 C9  
3Q06 C11  
3Q07 C1 B8  
3Q07 C2 B9  
3Q07 C3 B9  
3Q07 C4 B8  
3Q08 B1 B9  
3Q08 B2 B9  
3Q09 C8 B8  
3Q09 C4 B9  
3Q09 E8  
3Q25 C1 B8  
3Q25 C2 B9  
3Q25 C3 C8  
3Q25 C4 C9  
3Q26 C3 A9  
3Q26 C4 A8  
3Q28 C1 A9  
3Q28 C2 A8  
3Q28 C3 A9  
3Q28 C4 A9  
3Q33 H5  
3Q34 C1 A9  
3Q34 C2 A9  
3Q34 C3 A8  
3Q34 C4 A9  
3Q35 H5  
3Q37 H6  
3Q39 H5  
3Q41 H5  
3Q42 H6  
3Q44 C1 B9  
3Q44 C2 B8  
3Q44 C3 B9  
3Q44 C4 B9  
3Q45 H5  
3Q47 H5  
3Q49 H6  
3Q51 H5  
3Q53 H5  
3Q55 H6  
3Q57 H5  
3Q59 I5  
3Q61 I6  
3Q63 I5  
3Q64 F8  
3Q65 I9  
3Q66 I5  
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3Q87 C9  
3Q88 C8  
3Q89 C9  
3Q91 C9  
5H05 H2  
5Q05 B12  
5Q06 C12  
6H10 D10  
7V00 C1 A6  
7V00 C4 G7  
9H18 D3  
9H19 D4  
9H26 G8  
9H27 G8  
9H29 G7  
9H32 D3  
9H33 D4  
9H34 G7  
FQ15 H3  
IH00 E4  
IH01 D4  
IH03 D4  
IH04 E8  
IH05 F8  
IH06 D9  
IH07 C9  
IH08 C9  
IH10 D5  
IH11 D5  
IH12 C11  
IH13 C12  
IH14 C13  
IH15 D5  
IQ00 B11  
IQ01 B11  
IQ02 B13  
IQ31 H3

SSB: Viper: Supply

|          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |         |           |         |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|-----------|---------|----------|
| 2Q00 C10 | 2Q06 C12 | 2Q10 C13 | 2Q14 C14 | 2Q18 C15 | 2Q24 E11 | 2Q30 E12 | 2Q35 E14 | 2Q40 D10 | 2Q45 D12 | 2Q49 D13 | 2Q53 D14 | 2Q57 D15 | 2Q61 F11 | 2Q65 C9  | 2Q78 C9  | 2Q98 E10 | 2V08 E15 | 2V61 E11 | 2V65 E9 | 5Q04 B10  | IQ07 C9 | IQ11 F11 |
| 2Q02 C11 | 2Q07 C12 | 2Q11 C13 | 2Q15 C14 | 2Q19 C15 | 2Q26 E12 | 2Q32 E13 | 2Q37 E14 | 2Q42 D11 | 2Q46 D12 | 2Q50 D13 | 2Q54 D14 | 2Q58 D15 | 2Q62 F11 | 2Q66 C10 | 2Q90 C10 | 2Q99 E11 | 2V09 E15 | 2V62 E10 | 5Q01 B9 | 5Q07 F11  | IQ08 C9 |          |
| 2Q04 C11 | 2Q08 C12 | 2Q12 C13 | 2Q16 C14 | 2Q20 E10 | 2Q27 E12 | 2Q33 E13 | 2Q38 E14 | 2Q43 D11 | 2Q47 D12 | 2Q51 D13 | 2Q55 D14 | 2Q59 D15 | 2Q63 C8  | 2Q76 C8  | 2Q96 C11 | 2V06 E15 | 2V59 C11 | 2V63 E10 | 5Q02 B9 | 5Q08 F11  | IQ09 C8 |          |
| 2Q05 C12 | 2Q09 C13 | 2Q13 C14 | 2Q17 C15 | 2Q22 E11 | 2Q28 E12 | 2Q34 E13 | 2Q39 E14 | 2Q44 D11 | 2Q48 D12 | 2Q52 D13 | 2Q56 D14 | 2Q60 F10 | 2Q64 C9  | 2Q77 C9  | 2Q97 D10 | 2V07 E15 | 2V60 D11 | 2V64 E10 | 5Q03 B9 | 7V00-3 C1 | IQ10 C9 |          |

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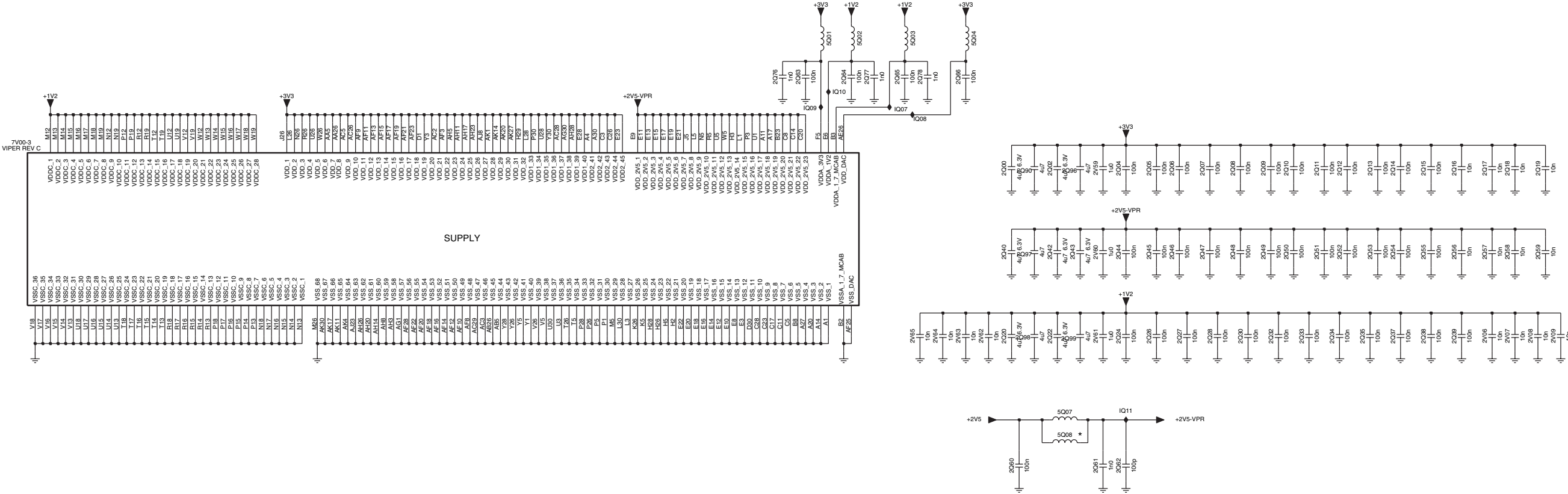
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SSB: Viper: Display Diversity & Ambi Light

|          |          |         |          |          |          |          |         |          |          |          |            |          |         |          |          |          |          |          |          |
|----------|----------|---------|----------|----------|----------|----------|---------|----------|----------|----------|------------|----------|---------|----------|----------|----------|----------|----------|----------|
| 1D40 A3  | 2Q71 D13 | 2Q80 G5 | 2Q86 E2  | 2Q93 G5  | 3Q30 C12 | 3Q54 B5  | 3Q76 G6 | 3Q85 A10 | 3Q96 C6  | 5Q11 D1  | 6H09 E7    | 9Q19 D12 | FQ08 B3 | FQ16 B3  | FQ36 D14 | FQ55 D14 | IQ41 C10 | IQ47 B6  | IQ58 B10 |
| 1M03 G2  | 2Q72 D13 | 2Q81 H5 | 2Q87 A4  | 2Q94 A9  | 3Q31 B11 | 3Q56 B5  | 3Q79 G6 | 3Q86 C10 | 3Q97 C10 | 5Q12 D1  | 7Q05-1 C11 | 9Q62 C11 | FQ09 B3 | FQ17 B3  | FQ40 C4  | FQ56 G4  | IQ42 C11 | IQ49 B6  | IQ59 A9  |
| 1M59 C14 | 2Q73 F5  | 2Q82 H5 | 2Q88 E2  | 2Q95 B9  | 3Q32 D10 | 3Q72 C12 | 3Q80 H6 | 3Q89 B5  | 3Q98 D10 | 5Q13 D1  | 7Q05-2 D11 | 9Q63 D11 | FQ11 B3 | FQ24 C4  | FQ46 F3  | FQ57 H4  | IQ43 D11 | IQ54 H9  | IQ62 B9  |
| 1M63 E2  | 2Q74 F5  | 2Q83 E2 | 2Q89 D4  | 2QA0 H7  | 3Q36 C6  | 3Q73 C12 | 3Q81 H6 | 3Q92 C6  | 3Q99 C12 | 6H04 B12 | 7Q06-1 A9  | 9Q64 B9  | FQ12 B3 | FQ25 C14 | FQ47 F3  | FQ58 H3  | IQ44 B6  | IQ55 C9  |          |
| 2Q36 C4  | 2Q75 F5  | 2Q84 B2 | 2Q91 D11 | 3H00 C14 | 3Q42 B6  | 3Q74 F6  | 3Q83 A9 | 3Q93 C6  | 5Q09 B1  | 6H05 E12 | 7Q06-2 B9  | 9Q65 C9  | FQ13 B3 | FQ26 C14 | FQ48 G3  | FQ59 H3  | IQ45 D10 | IQ56 C10 |          |
| 2Q41 F3  | 2Q79 G5  | 2Q85 C1 | 2Q92 B11 | 3Q29 E12 | 3Q46 H8  | 3Q75 F6  | 3Q84 B9 | 3Q94 H9  | 5Q10 B1  | 6H08 E6  | 9Q10 D14   | FQ07 D7  | FQ14 B3 | FQ35 B4  | FQ49 G3  | IQ40 B11 | IQ46 E11 | IQ57 B9  |          |

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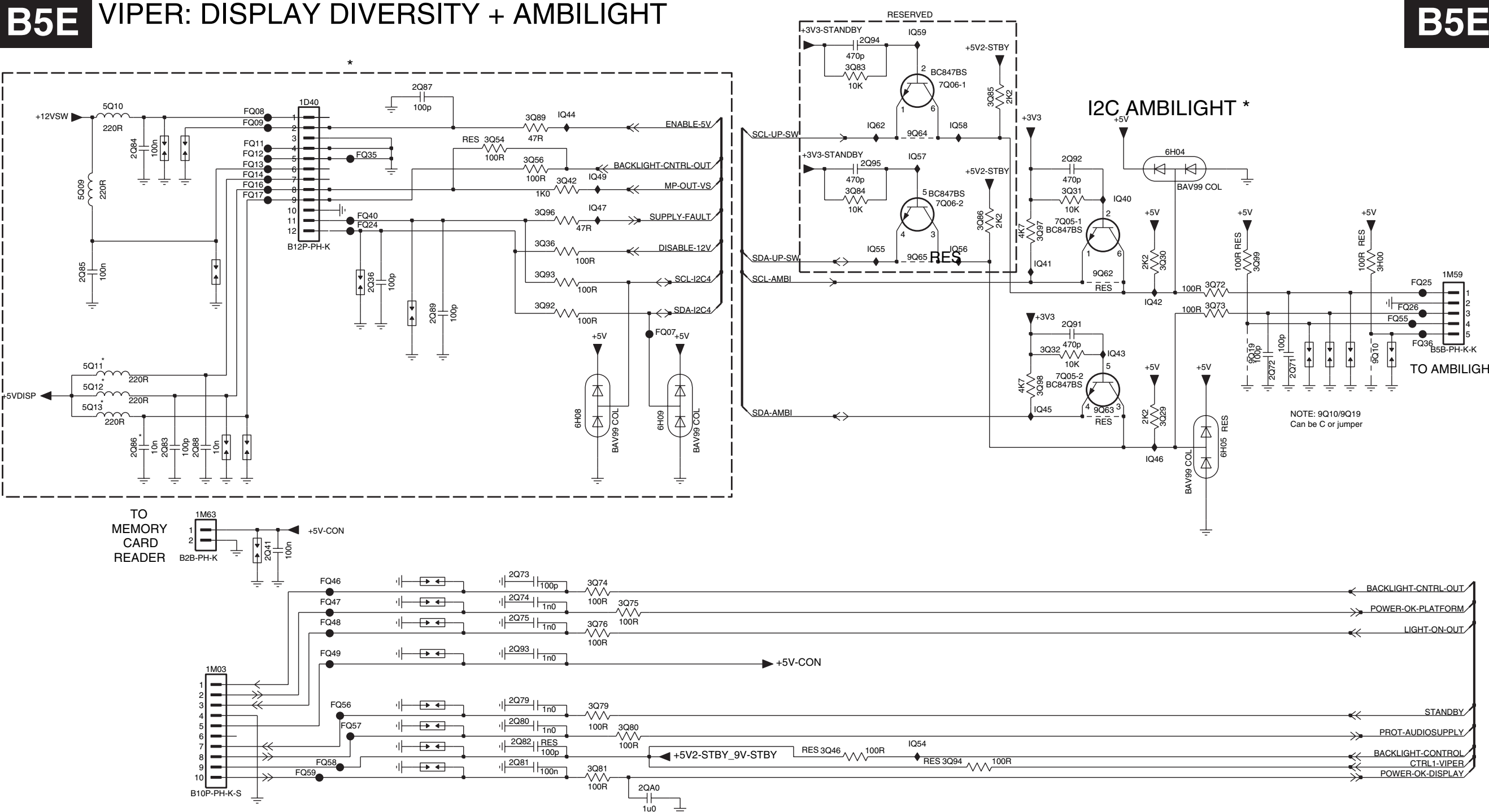
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B5E VIPER: DISPLAY DIVERSITY + AMBILIGHT

B5E

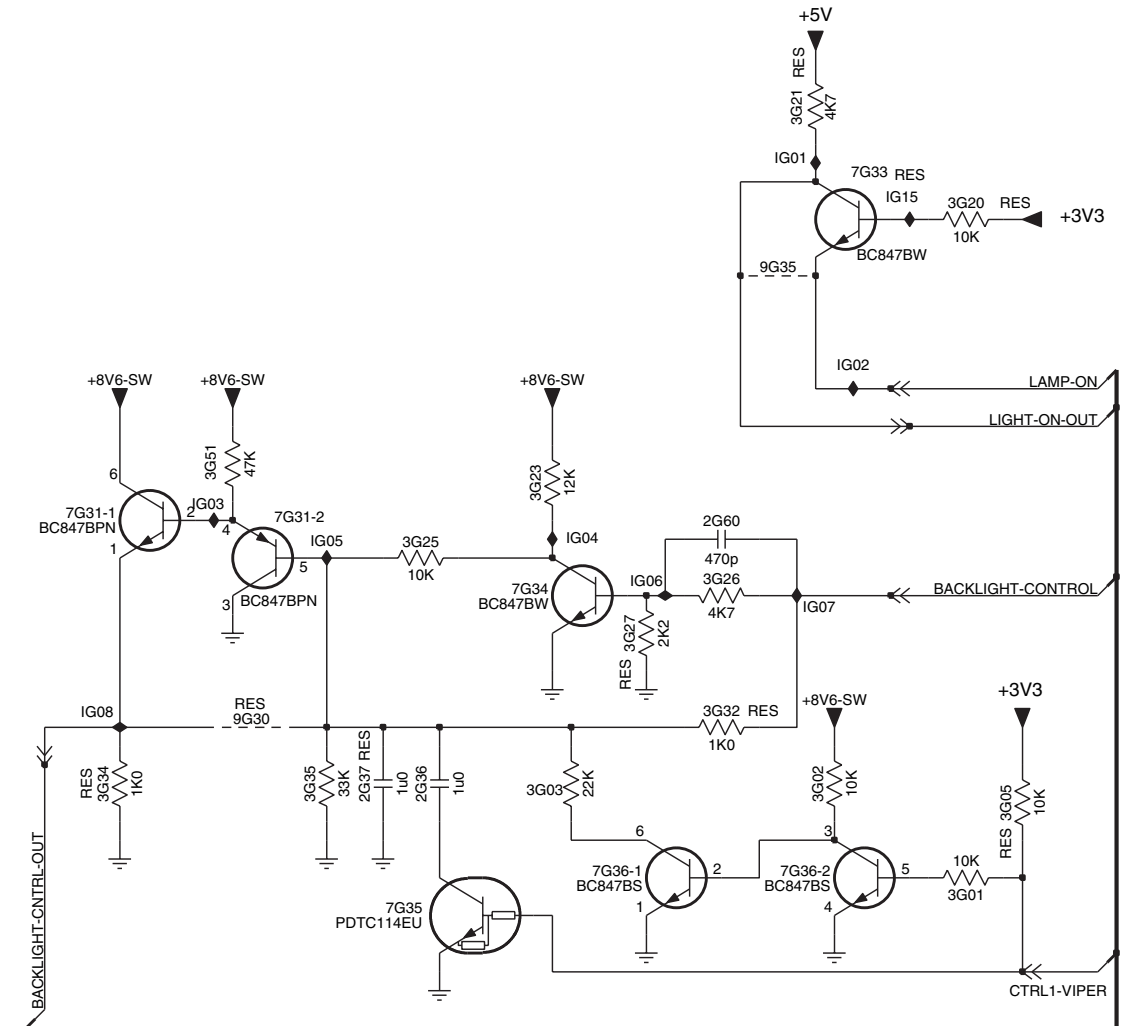


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| 2G36 D7  | 3G02 D9  | 3G09 B4 | 3G13 B4 | 3G17 D4 | 3G23 C8 | 3G32 D9 | 3G55-1 C4 | 3G56-1 C4 | 3G57-1 D4 | 3G58-1 D4 | 3G59-1 E4 | 3G60-1 E4 | 7G31-1 C6 | 7G35 E7   | 9G35 B9 | IG04 C8 | IG08 D6 |
| 2G37 D7  | 3G03 D8  | 3G10 B4 | 3G14 B4 | 3G18 D4 | 3G25 C7 | 3G34 D6 | 3G55-2 C4 | 3G56-2 C4 | 3G57-2 D4 | 3G58-2 D4 | 3G59-2 E4 | 3G60-2 E4 | 7G31-2 C7 | 7G36-1 E8 | IG01 B9 | IG05 C7 | IG15 B9 |
| 2G60 C9  | 3G05 D10 | 3G11 B4 | 3G15 C4 | 3G20 B9 | 3G26 C9 | 3G35 D7 | 3G55-3 C4 | 3G56-3 C4 | 3G57-3 D4 | 3G58-3 D4 | 3G59-3 E4 | 3G60-3 E4 | 7G33 B9   | 7G36-2 E9 | IG02 C9 | IG06 C8 |         |
| 3G01 E10 | 3G08 B4  | 3G12 B4 | 3G16 C4 | 3G21 B9 | 3G27 D8 | 3G51 C7 | 3G55-4 C4 | 3G56-4 C4 | 3G57-4 D4 | 3G58-4 D4 | 3G59-4 D4 | 3G60-4 E4 | 7G34 C8   | 9G30 D7   | IG03 C7 | IG07 C9 |         |

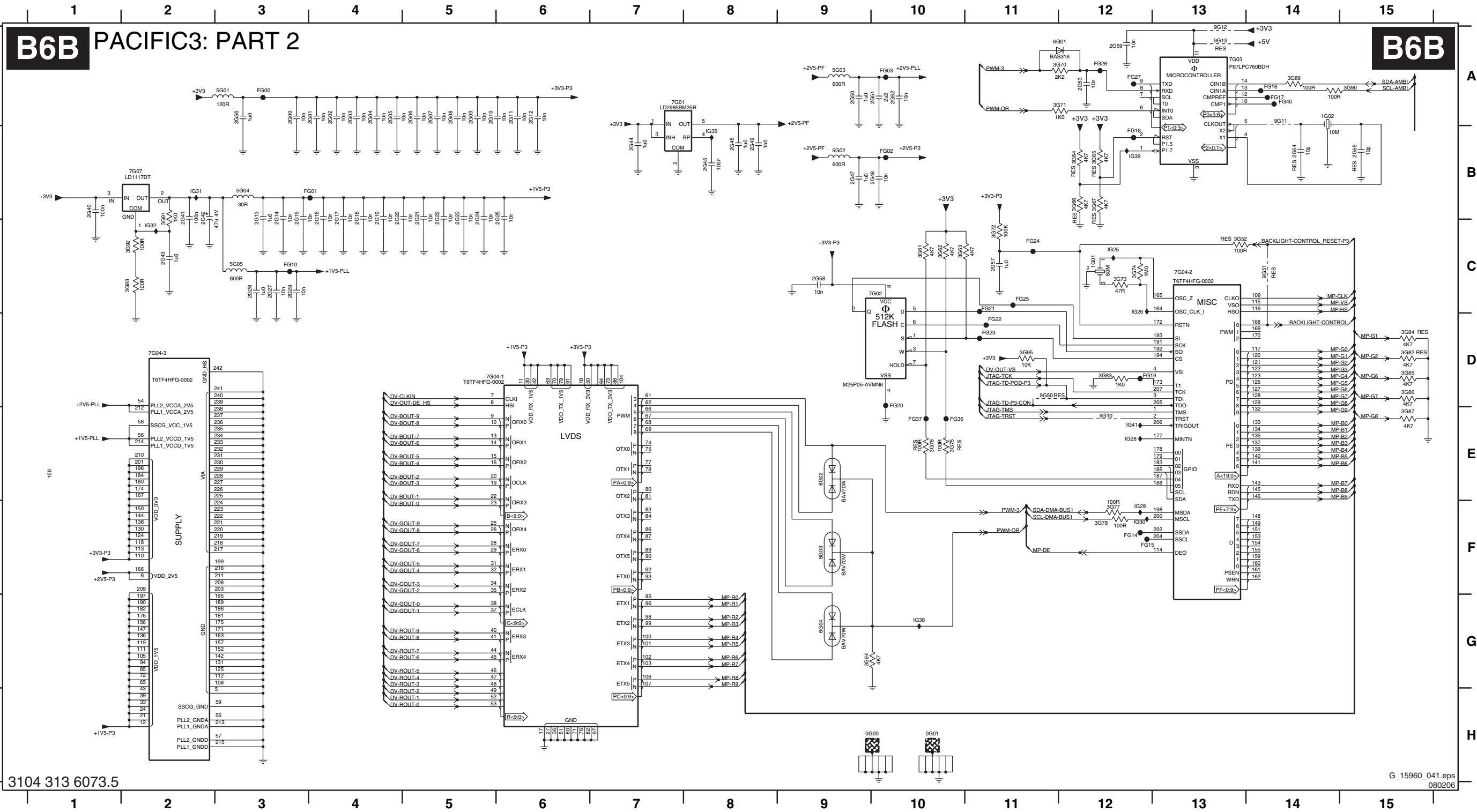
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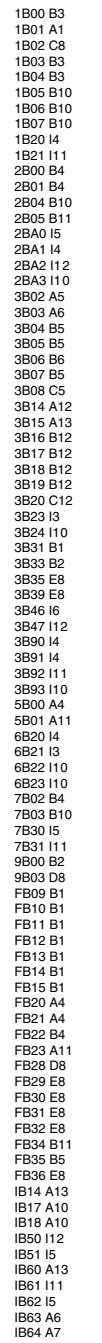
SSB: Pacific 3: Part 2

|          |         |         |         |         |         |         |          |          |          |          |          |          |          |          |          |          |          |            |           |          |          |          |          |          |          |          |          |
|----------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1G01 C12 | 2G03 A4 | 2G08 A5 | 2G13 B3 | 2G18 B4 | 2G23 B5 | 2G28 C3 | 2G44 B7  | 2G49 B8  | 2G54 B14 | 2G59 A12 | 3G64 B12 | 3G71 A12 | 3G76 E10 | 3G84 D15 | 3G90 A15 | 3G95 D11 | 5G05 C3  | 7G01 A7    | 7G04-3 D2 | 9G13 A13 | FG02 B10 | FG16 A14 | FG21 C11 | FG26 A12 | IG25 C12 | IG31 B2  | IG41 E12 |
| 1G02 A14 | 2G04 A4 | 2G09 A5 | 2G14 B3 | 2G19 B4 | 2G24 B5 | 2G40 B1 | 2G45 B8  | 2G50 A9  | 2G55 B15 | 3G52 C13 | 3G65 B12 | 3G72 C11 | 3G77 F12 | 3G85 D15 | 3G91 B2  | 5G01 A12 | 6G01 A12 | 7G02 C9    | 7G07 B2   | 9G50 D11 | FG03 A10 | FG17 A14 | FG22 D11 | FG27 A12 | IG26 C12 | IG32 C2  |          |
| 2G00 A3  | 2G05 A4 | 2G10 A5 | 2G15 B3 | 2G20 B4 | 2G25 B6 | 2G41 B2 | 2G46 B8  | 2G51 A10 | 2G56 A3  | 3G61 C10 | 3G66 B12 | 3G73 C12 | 3G78 F12 | 3G86 D15 | 3G92 C2  | 5G02 B9  | 6G02 E9  | 7G03 A13   | 9G10 E12  | 9G51 C14 | FG10 C3  | FG18 B12 | FG23 D11 | FG36 E10 | IG28 E12 | IG35 B8  |          |
| 2G01 A4  | 2G06 A5 | 2G11 A6 | 2G16 B4 | 2G21 B5 | 2G26 C3 | 2G42 B2 | 2G47 B9  | 2G52 A10 | 2G57 C11 | 3G62 C10 | 3G67 B12 | 3G74 C12 | 3G82 D15 | 3G87 E15 | 3G93 C2  | 5G03 A9  | 6G03 F9  | 7G04-1 D6  | 9G11 A14  | FG00 A3  | FG14 F12 | FG19 D12 | FG24 C11 | FG37 E10 | IG29 F12 | IG38 G10 |          |
| 2G02 A4  | 2G07 A5 | 2G12 A6 | 2G17 B4 | 2G22 B5 | 2G27 C3 | 2G43 C2 | 2G48 B10 | 2G53 A12 | 2G58 C9  | 3G63 C10 | 3G70 A12 | 3G75 E10 | 3G83 D12 | 3G89 A14 | 3G94 G9  | 5G04 B3  | 6G04 G9  | 7G04-2 C13 | 9G12 A13  | FG01 B4  | FG15 F12 | FG20 E10 | FG25 C11 | FG40 A14 | IG30 F12 | IG39 B12 |          |



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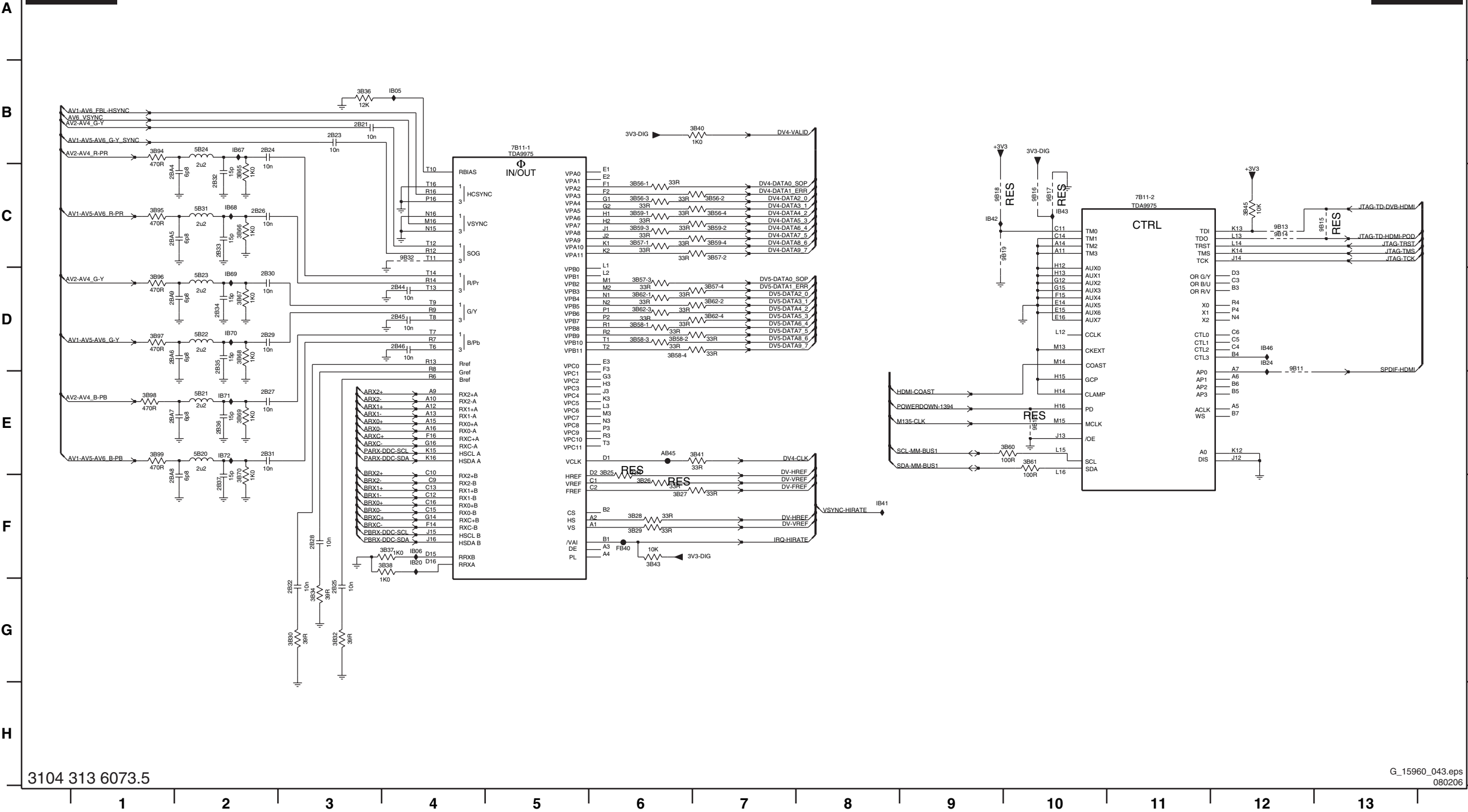
**B7A** HDMI



SSB: HDMI: I/O & Control

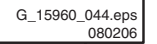
B7B HDMI: I/O + CONTROL

B7B

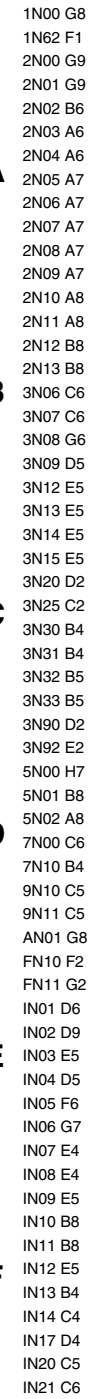




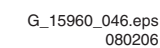
**B7C** HDMI: SUPPLY



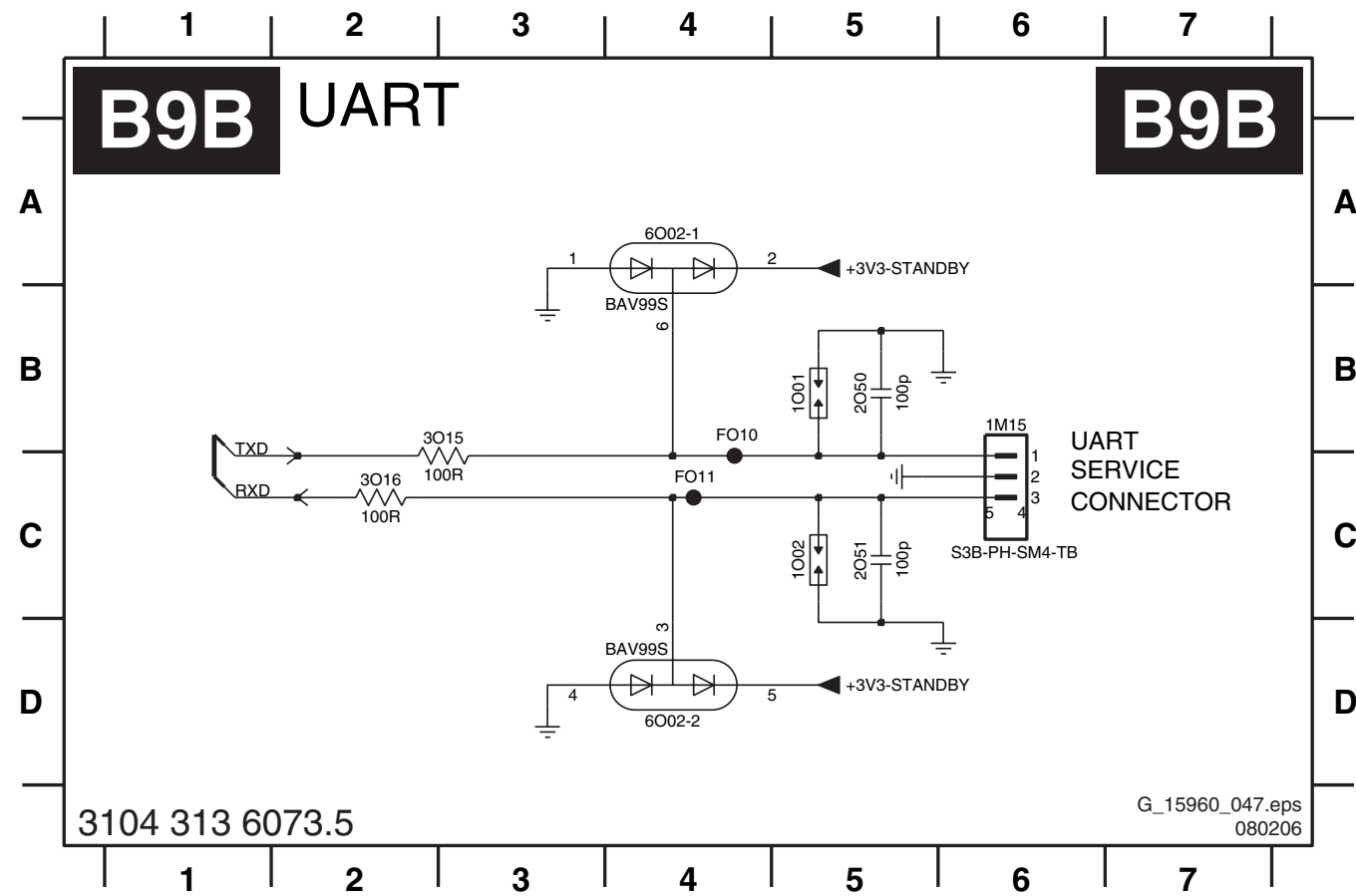
**B8**



|          |          |          |          |          |          |          |          |         |          |         |         |         |         |           |          |          |         |          |          |         |
|----------|----------|----------|----------|----------|----------|----------|----------|---------|----------|---------|---------|---------|---------|-----------|----------|----------|---------|----------|----------|---------|
| 1000 C8  | 2002 H4  | 2006 D12 | 2012 G10 | 2016 C8  | 2020 G11 | 2024 G11 | 2028 G10 | 3003 C7 | 3007 D1  | 3011 D8 | 3021 A8 | 3025 C9 | 5000 G9 | 7000-1 B3 | FO01 A10 | FO05 C10 | FO12 H9 | IO04 G10 | IO08 A12 | IO13 F7 |
| 1010 A10 | 2003 H3  | 2007 D11 | 2013 B9  | 2017 H9  | 2021 G11 | 2025 G10 | 3000 C8  | 3004 E8 | 3008 E1  | 3012 D9 | 3022 A9 | 3026 C9 | 5001 H9 | 7000-2 H7 | FO02 B10 | FO06 F9  | IO01 E7 | IO05 A9  | IO10 C8  | IO14 F8 |
| 2000 D8  | 2004 A11 | 2010 E3  | 2014 B9  | 2018 H10 | 2022 G11 | 2026 G10 | 3001 C7  | 3005 F8 | 3009 A11 | 3013 D9 | 3023 A9 | 3027 C9 | 6000 F8 | 9016 C9   | FO03 C10 | FO07 F9  | IO02 C7 | IO06 C9  | IO11 F7  |         |
| 2001 D8  | 2005 A12 | 2011 G9  | 2015 B10 | 2019 G12 | 2023 G11 | 2027 G10 | 3002 D3  | 3006 F8 | 3010 C11 | 3014 D9 | 3024 A9 | 3028 C9 | 6001 F8 | AO01 C8   | FO04 C10 | FO08 E3  | IO03 H3 | IO07 D12 | IO12 F7  |         |



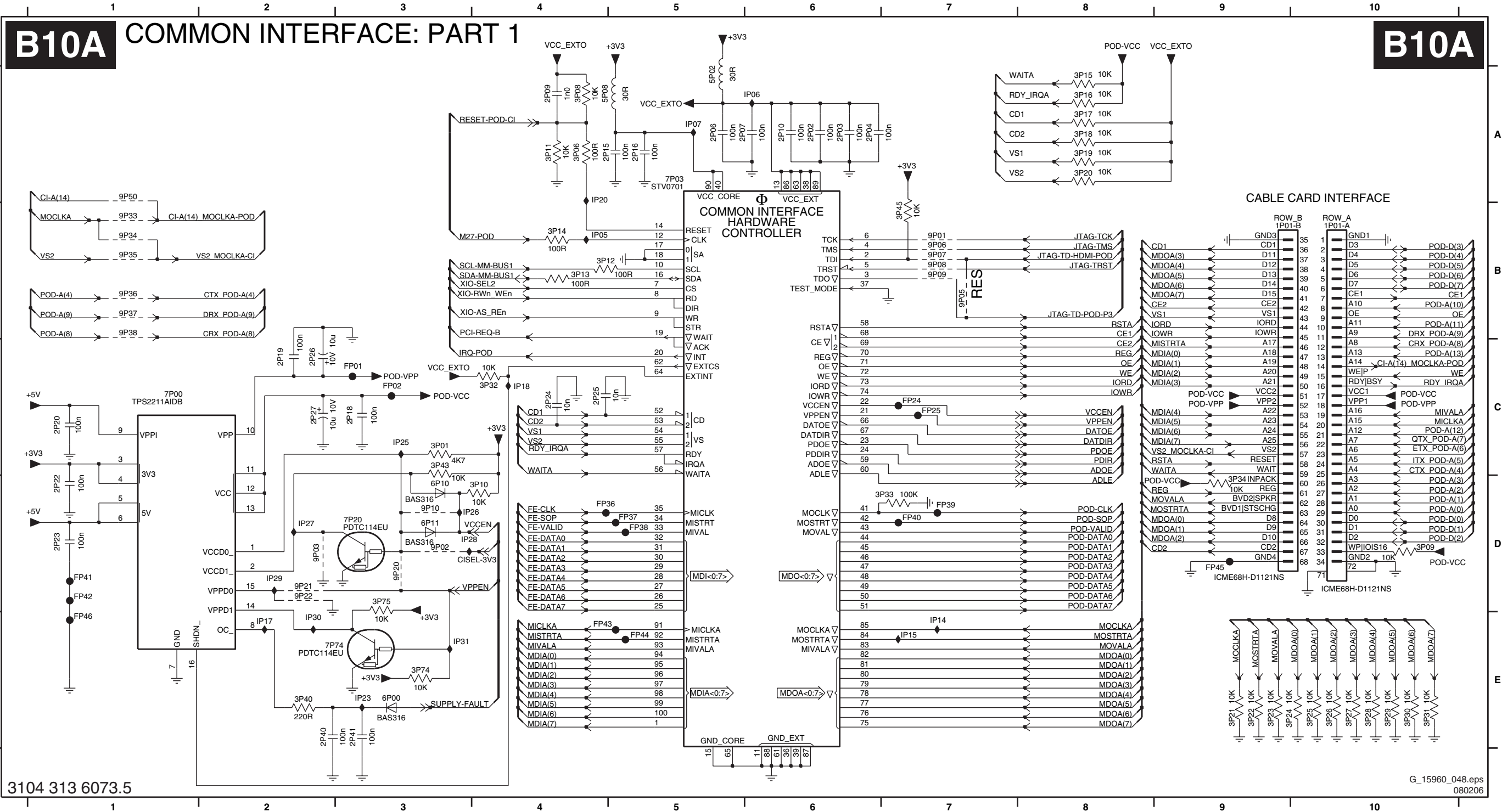
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| 1M15 B6 | 1O02 C5 | 2O51 C5 | 3O16 C2   | 6O02-2 D4 | FO11 C4 |
| 1O01 B5 | 2O50 B5 | 3O15 B3 | 6O02-1 A4 | FO10 B4   |         |



**Personal Notes:**

SSB: Common Interface: Part 1

|            |         |         |         |          |         |          |          |         |         |         |         |         |         |         |         |         |         |         |         |
|------------|---------|---------|---------|----------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1P01-A B10 | 2P07 A6 | 2P19 C2 | 2P26 C2 | 3P08 A4  | 3P14 B4 | 3P20 A8  | 3P26 E10 | 3P32 C4 | 3P74 E3 | 6P11 D3 | 9P02 D3 | 9P09 B7 | 9P34 B1 | FP01 C3 | FP38 D5 | FP44 E5 | IP14 E7 | IP25 C3 | IP31 E3 |
| 1P01-B B9  | 2P09 A4 | 2P20 C1 | 2P27 C2 | 3P09 D10 | 3P15 A8 | 3P21 E9  | 3P27 E10 | 3P33 D7 | 3P75 D3 | 7P00 C1 | 9P03 D2 | 9P10 D3 | 9P35 B1 | FP02 C3 | FP39 D7 | FP45 D9 | IP15 E7 | IP26 D3 |         |
| 2P02 A6    | 2P10 A6 | 2P22 D1 | 2P40 E2 | 3P10 D4  | 3P16 A8 | 3P22 E9  | 3P28 E10 | 3P34 D9 | 5P02 A5 | 7P03 A5 | 9P05 B7 | 9P20 D3 | 9P36 B1 | FP24 C7 | FP40 D7 | FP46 E1 | IP17 E2 | IP27 D2 |         |
| 2P03 A6    | 2P15 A5 | 2P23 D1 | 2P41 E3 | 3P11 A4  | 3P17 A8 | 3P23 E9  | 3P29 E10 | 3P40 E2 | 5P08 A4 | 7P20 D3 | 9P06 B7 | 9P21 D2 | 9P37 B1 | FP25 C7 | FP41 D1 | IP05 B4 | IP18 C4 | IP28 D3 |         |
| 2P04 A6    | 2P16 A5 | 2P24 C4 | 3P01 C3 | 3P12 B4  | 3P18 A8 | 3P24 E10 | 3P30 E10 | 3P43 C3 | 6P00 E3 | 7P74 E3 | 9P07 B7 | 9P22 D2 | 9P38 B1 | FP36 D4 | FP42 D1 | IP06 A6 | IP20 A4 | IP29 D2 |         |
| 2P06 A5    | 2P18 C3 | 2P25 C4 | 3P06 A4 | 3P13 B4  | 3P19 A8 | 3P25 E10 | 3P31 E10 | 3P45 B7 | 6P10 D3 | 9P01 B7 | 9P08 B7 | 9P33 B1 | 9P50 A1 | FP37 D5 | FP43 E4 | IP07 A5 | IP23 E3 | IP30 E2 |         |

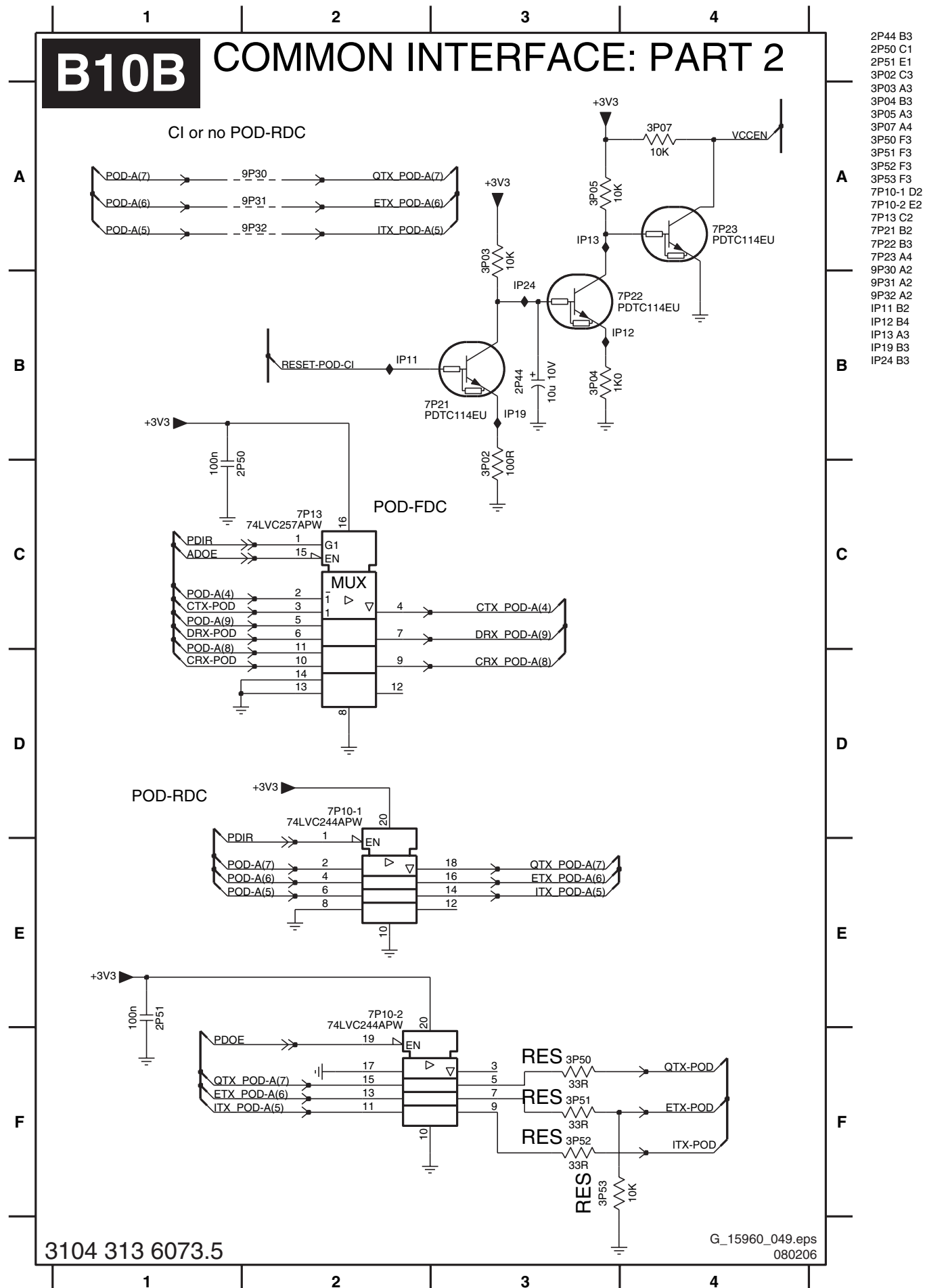


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## SSB: Common Interface: Part 2



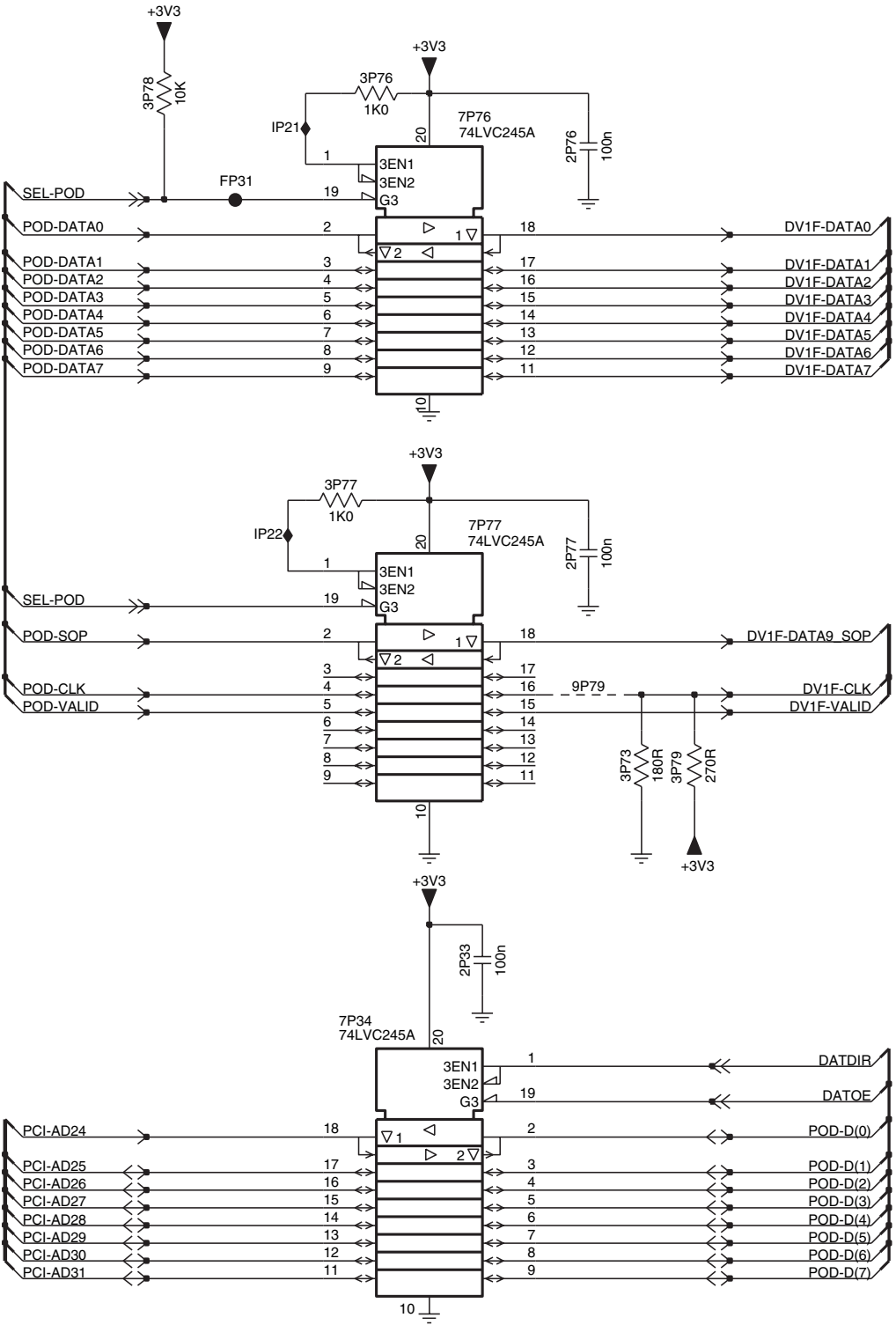
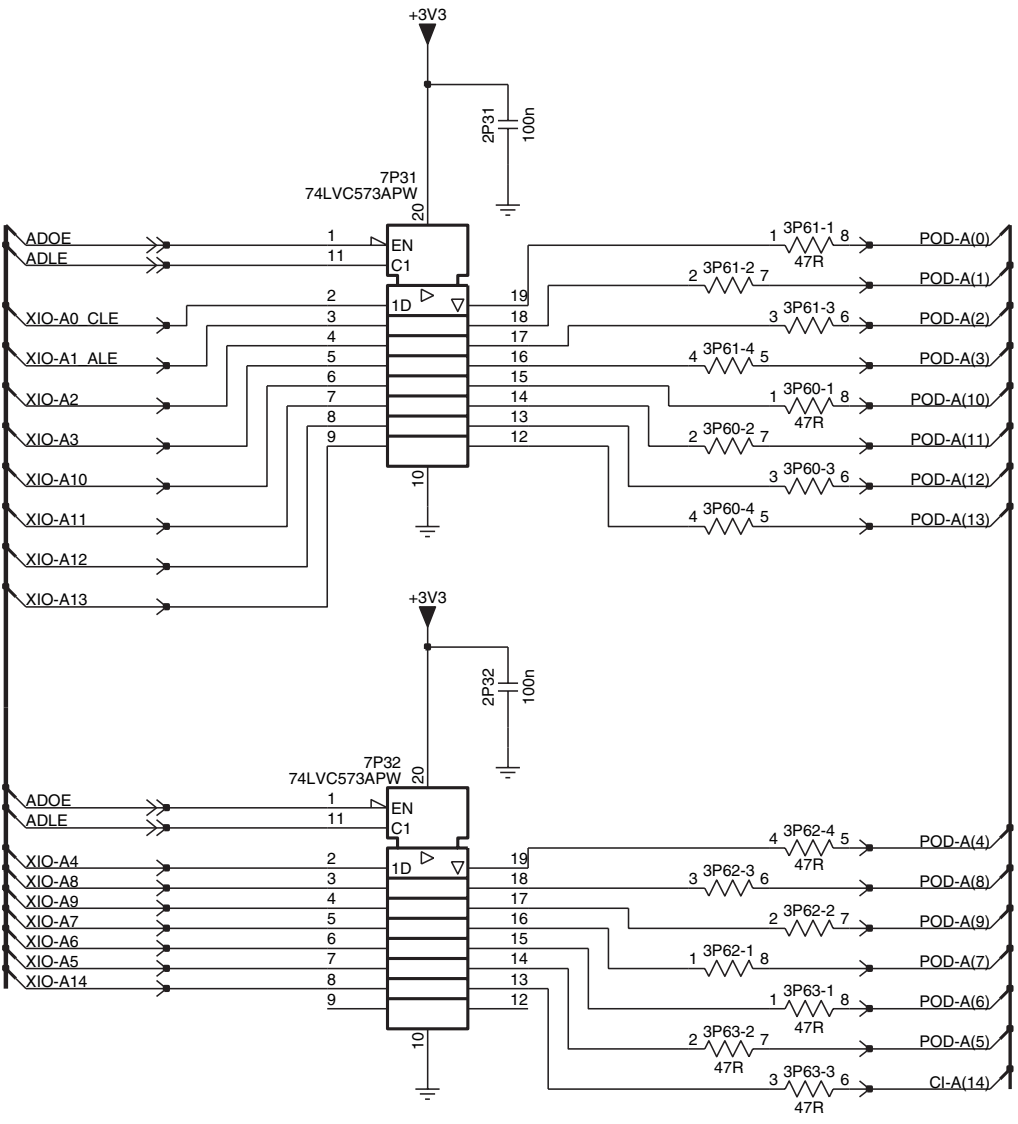
**Personal Notes:**

- 2P44 B3  
2P50 C1  
2P51 E1  
3P02 C3  
3P03 A3  
3P04 B3  
3P05 A3  
3P07 A4  
3P50 F3  
3P51 F3  
3P52 F3  
3P53 F3  
7P10-1 D2  
7P10-2 E2  
7P13 C2  
7P21 B2  
7P22 B3  
7P23 A4  
9P30 A2  
9P31 A2  
9P32 A2  
IP11 B2  
IP12 B4  
IP13 A3  
IP19 B3  
IP24 B3

SSB: Common Interface: Part 3

B10C COMMON INTERFACE: PART 3

B10C

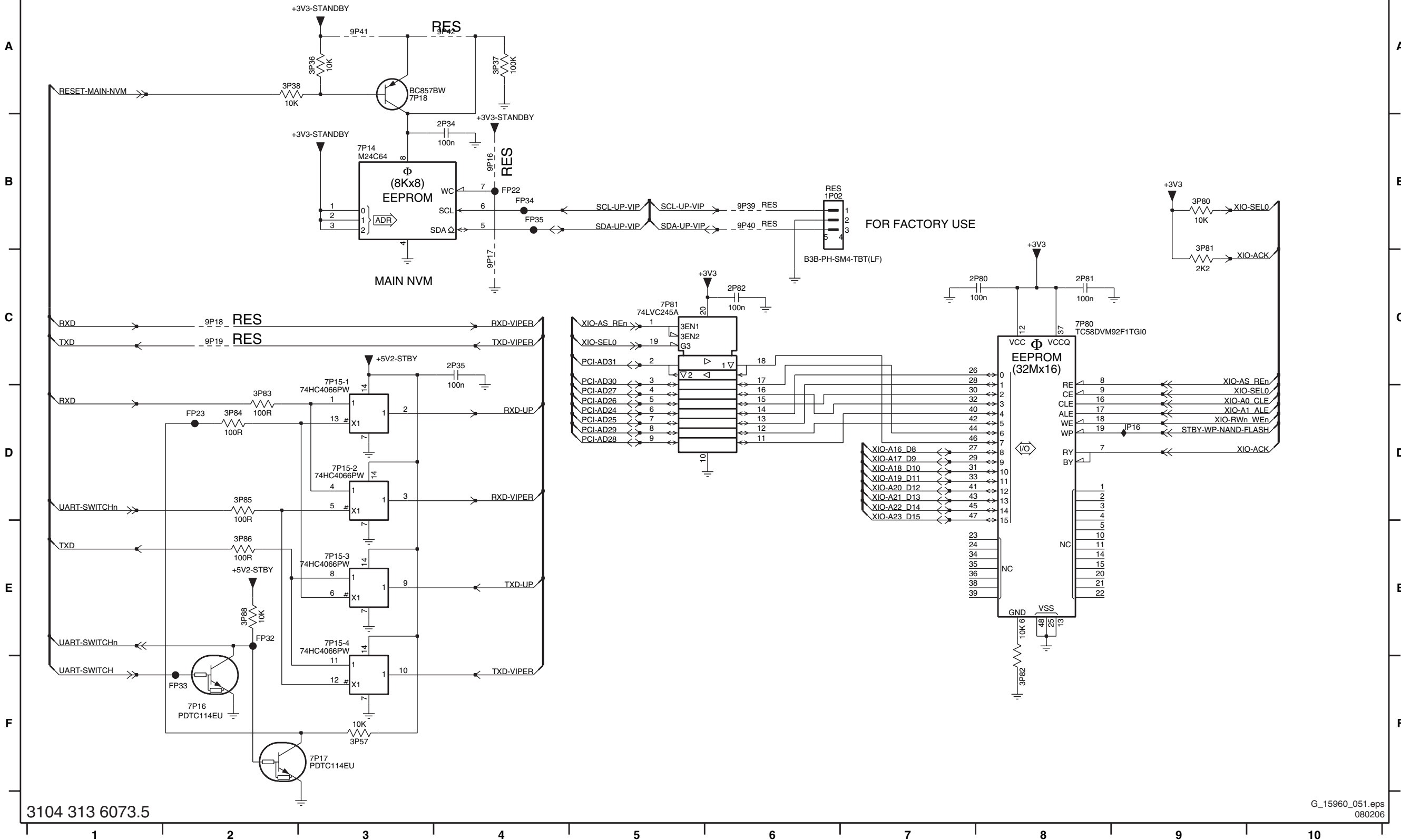


- 2P31 A3
- 2P32 C3
- 2P33 E7
- 2P76 A7
- 2P77 C7
- 3P60-1 B4
- 3P60-2 C3
- 3P60-3 C4
- 3P60-4 C3
- 3P61-1 B4
- 3P61-2 B3
- 3P61-3 B4
- 3P61-4 B3
- 3P62-1 D3
- 3P62-2 D4
- 3P62-3 D3
- 3P62-4 D4
- 3P63-1 E4
- 3P63-2 E3
- 3P63-3 E4
- 3P73 D7
- 3P76 A6
- 3P77 C6
- 3P78 A6
- 3P79 D8
- 7P31 B2
- 7P32 D2
- 7P34 E6
- 7P76 A7
- 7P77 C7
- 9P79 C7
- FP31 A6
- IP21 A6
- IP22 C6

SSB: NVM / NAND / UART Switch

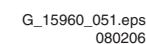
B10D NVM / NAND / UART SWITCH

B10D

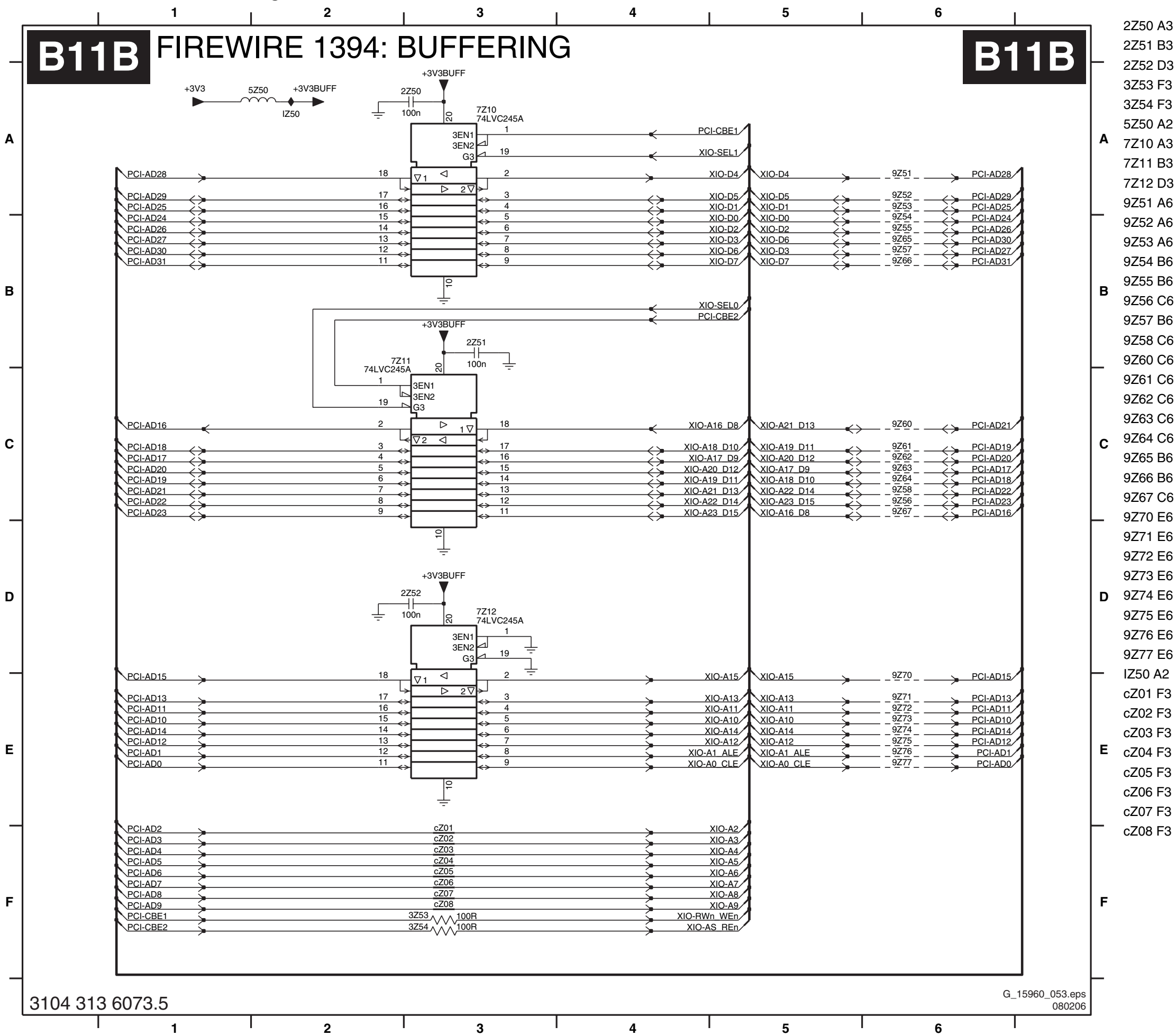


- 1P02 B6
- 2P34 B4
- 2P35 C4
- 2P80 C8
- 2P81 C8
- 2P82 C6
- 3P36 A3
- 3P37 A4
- 3P38 A2
- 3P57 F3
- 3P80 B9
- 3P81 C9
- 3P82 F8
- 3P83 D2
- 3P84 D2
- 3P85 D2
- 3P86 E2
- 3P88 E2
- 7P14 B3
- 7P15-1 C3
- 7P15-2 D3
- 7P15-3 E3
- 7P15-4 E3
- 7P16 F2
- 7P17 F3
- 7P18 A3
- 7P80 C8
- 7P81 C5
- 9P16 B4
- 9P17 C4
- 9P18 C2
- 9P19 C2
- 9P39 B6
- 9P40 B6
- 9P41 A3
- 9P42 A4
- FP22 B4
- FP23 D2
- FP32 E2
- FP33 F2
- FP34 B4
- FP35 B4
- IP16 D9

**B11A** FIREWIRE 1394: MAIN



SSB: Firewire 1394: Buffering



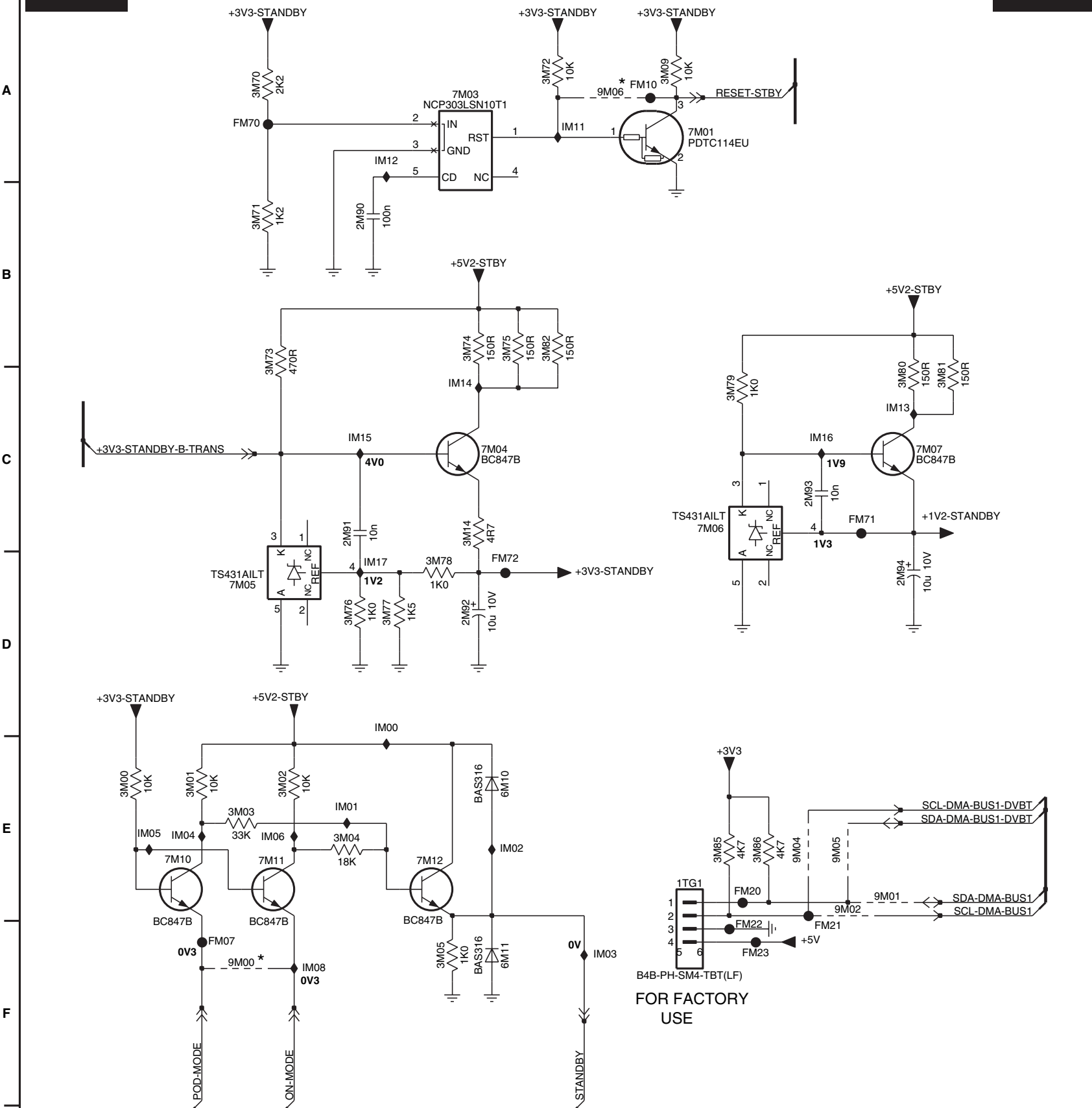
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7Z12 D3  
9Z51 A6  
9Z53 A6  
9Z52 A6  
9Z55 B6  
9Z56 C6  
9Z57 B6  
9Z58 C6  
9Z60 C6  
9Z61 C6  
9Z62 C6  
9Z63 C6  
9Z64 C6  
9Z65 B6  
9Z66 B6  
9Z67 C6  
9Z70 E6  
9Z71 E6  
9Z72 E6  
9Z73 E6  
9Z74 E6  
9Z75 E6  
9Z76 E6  
9Z77 E6  
IZ50 A2  
cZ01 F3  
cZ02 F3  
cZ03 F3  
cZ04 F3  
cZ05 F3  
cZ06 F3  
cZ07 F3  
cZ08 F3



SSB: Firewire 1394: Miscellaneous

B12 MISCELLANEOUS

B12



- 1TG1 E4
- 2M90 B2
- 2M91 C2
- 2M92 D3
- 2M93 C4
- 2M94 D5
- 3M00 E1
- 3M01 E1
- 3M02 E2
- 3M03 E1
- 3M04 E2
- 3M05 F2
- 3M09 A4
- 3M14 C3
- 3M70 A1
- 3M71 B1
- 3M72 A3
- 3M73 B1
- 3M74 B3
- 3M75 B3
- 3M76 D2
- 3M77 D2
- 3M78 D2
- 3M79 C4
- 3M80 C5
- 3M81 C5
- 3M82 B3
- 3M85 E4
- 3M86 E4
- 6M10 E3
- 6M11 F3
- 7M01 A4
- 7M03 A2
- 7M04 C3
- 7M05 D1
- 7M06 C4
- 7M07 C5
- 7M10 E1
- 7M11 E1
- 7M12 E2
- 9M00 F1
- 9M01 E5
- 9M02 E5
- 9M04 E4
- 9M05 E5
- 9M06 A3
- FM07 F1
- FM10 A3
- FM20 E4
- FM21 F4
- FM22 F4
- FM23 F4
- FM70 A1
- FM71 C5
- FM72 D3
- IM00 D2
- IM01 E2
- IM02 E3
- IM03 F3
- IM04 E1
- IM05 E1
- IM06 E1
- IM08 F2
- IM11 A3
- IM12 A2
- IM13 C5
- IM14 C2
- IM15 C2
- IM16 C4
- IM17 D2



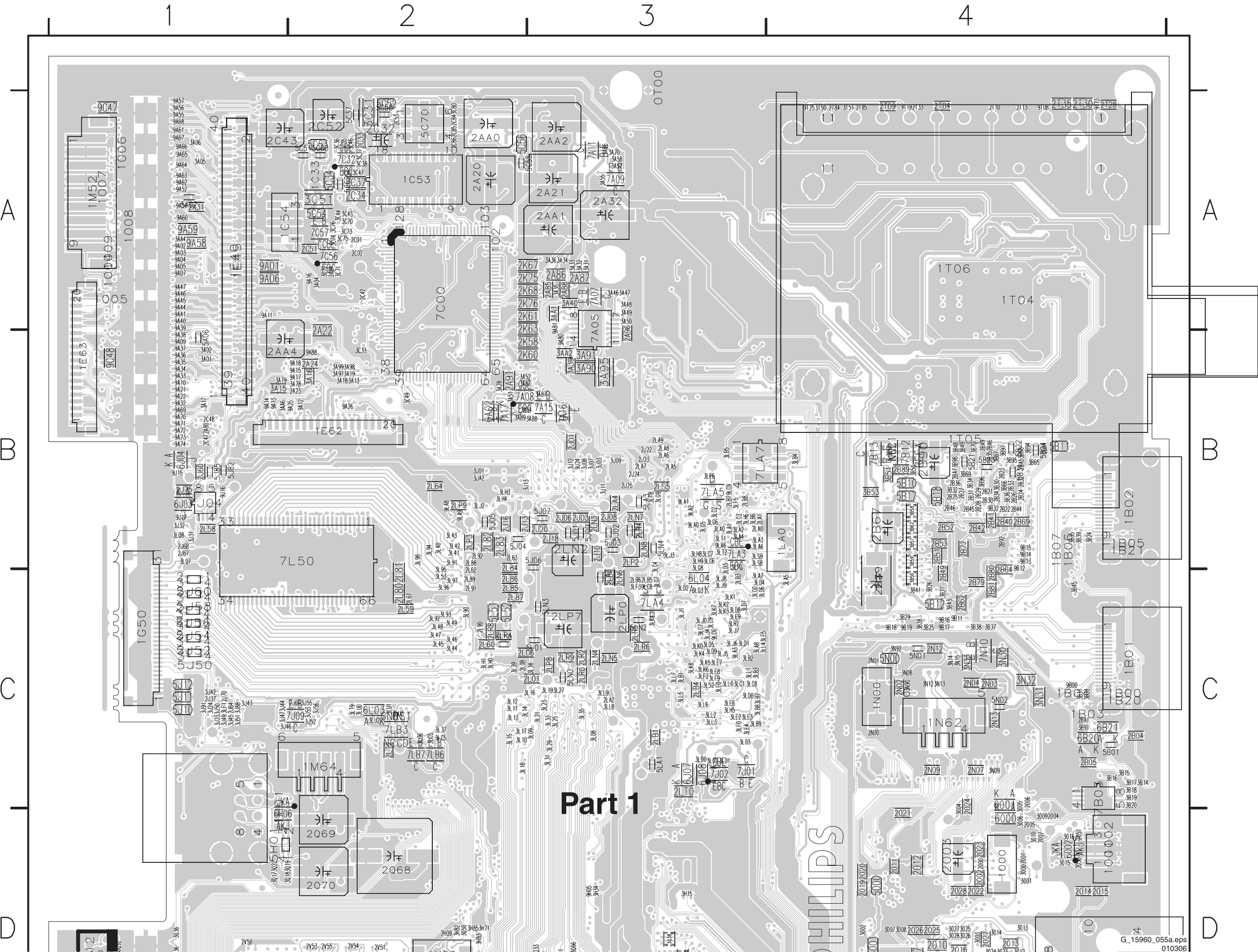






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| 1B01 C4 | 2B4A B4 | 2J75 B1 | 2018 D4 | 2Q94 F2 | 3A01 B1 | 3C31 A2 | 3H71 D2 | 3L4A B3 | 3LL9 C3 | 3Q61 D3 | 5B24 B4 | 6J04 B1 | 9A56 A1 | 9Z58 D4 |
| 1B02 B4 | 2BA5 B4 | 2K58 B3 | 2019 D4 | 2Q95 F2 | 3A02 B1 | 3C32 B2 | 3H72 D3 | 3L41 B3 | 3LQ7 B1 | 3Q63 D3 | 5B31 B4 | 6J07 C3 | 9A57 A1 | 9Z60 D4 |
| 1C33 A2 | 2BA6 B4 | 2K60 B3 | 2020 D4 | 2Q96 D3 | 3A04 A2 | 3C35 A2 | 3H73 E2 | 3L42 B3 | 3LQ8 B1 | 3Q65 D2 | 5C34 A2 | 6J08 C3 | 9A58 A1 | 9Z61 D4 |
| 1C53 A2 | 2BA7 B4 | 2K61 A3 | 2021 D4 | 2Q97 E2 | 3A05 A1 | 3C36 A2 | 3H74 E2 | 3L43 B3 | 3LRL C3 | 3Q66 D3 | 5C37 A2 | 6J03 C2 | 9A59 A1 | 9Z62 D4 |
| 1C54 A1 | 2BA9 B4 | 2K63 A3 | 2022 D4 | 2Q98 E3 | 3A06 A1 | 3C37 A2 | 3H75 D2 | 3L44 B3 | 3LS2 C3 | 3Q67 D3 | 5C51 A2 | 6J04 B3 | 9A60 A1 | 9Z63 D4 |
| 1D40 D1 | 2C01 A2 | 2K67 A3 | 2023 D4 | 2Q99 D3 | 3A13 B2 | 3C38 A2 | 3H79 E3 | 3L45 C4 | 3LS8 B3 | 3Q68 D3 | 5C52 A2 | 6000 D4 | 9A61 A1 | 9Z64 D4 |
| 1E40 A1 | 2C02 A2 | 2K68 A3 | 2024 C4 | 2T04 A4 | 3A15 B1 | 3C42 A2 | 3H80 D3 | 3L46 B3 | 3LS9 B3 | 3Q70 F2 | 5C53 A2 | 6001 D4 | 9A62 A1 | 9Z65 D4 |
| 1E45 A1 | 2C32 A2 | 2K75 A3 | 2025 D4 | 2T09 A4 | 3A16 B2 | 3C43 A2 | 3H81 D3 | 3L47 C3 | 3LTO B3 | 3Q72 E1 | 5C54 A2 | 6002 D4 | 9A63 A1 | 9Z66 D4 |
| 1E62 B2 | 2C33 A2 | 2K76 A3 | 2026 D4 | 2T10 A4 | 3A17 B1 | 3C44 A2 | 3H82 D2 | 3L48 C3 | 3LTL B3 | 3Q73 E1 | 5C55 A3 | 6U05 F3 | 9A64 A1 | 9Z67 D4 |
| 1E63 B1 | 2C34 A2 | 2L01 C3 | 2027 D4 | 2T13 A4 | 3A18 B2 | 3C46 A2 | 3H83 D2 | 3LBI C3 | 3LTL B3 | 3Q74 F1 | 5C56 A2 | 6U07 F3 | 9A65 A1 | 9Z70 D4 |
| 1G01 F1 | 2C37 A2 | 2L06 C2 | 2028 D4 | 2T28 A4 | 3A19 B2 | 3C47 A2 | 3H84 D3 | 3LB2 C3 | 3LTL C2 | 3Q75 F1 | 5C58 A2 | 6U11 G2 | 9A66 A1 | 9Z71 D4 |
| 1G02 F2 | 2C42 A2 | 2L08 C2 | 2050 D4 | 2T30 A4 | 3A28 B2 | 3C49 B2 | 3H85 D2 | 3LB3 C3 | 3LUI C2 | 3Q76 F1 | 5C60 A2 | 6U18 G2 | 9A67 A1 | 9Z72 D4 |
| 1G50 C1 | 2C43 A1 | 2L58 B1 | 2051 D4 | 2T33 A4 | 3A31 A4 | 3C51 A2 | 3H86 D3 | 3LB4 B4 | 3LUI C2 | 3Q79 E1 | 5C62 A2 | 6U25 G2 | 9A68 A1 | 9Z73 D4 |
| 1H00 D2 | 2C47 B1 | 2L59 C2 | 2000 E3 | 2T35 A4 | 3A32 A3 | 3C70 A2 | 3H87 D2 | 3LB5 B3 | 3LUI C2 | 3Q80 E1 | 5C70 A2 | 7A05 A3 | 9A69 B1 | 9Z74 D4 |
| 1H01 D1 | 2C48 B1 | 2L60 C2 | 2001 E2 | 2T84 A4 | 3A33 A4 | 3C71 A2 | 3H88 D3 | 3LB6 B3 | 3LUI C2 | 3Q81 E1 | 5G01 F2 | 7A07 A3 | 9A70 B1 | 9Z75 D4 |
| 1H07 F3 | 2C51 A2 | 2L61 C2 | 2002 D3 | 2T85 A4 | 3A34 A3 | 3C72 A2 | 3H90 E3 | 3LB7 C3 | 3N03 C4 | 3Q83 F2 | 5G02 F2 | 7A08 B3 | 9A71 B1 | 9Z76 D4 |
| 1LA0 C4 | 2C52 A2 | 2L62 C2 | 2003 E2 | 2U00 G1 | 3A35 A3 | 3C73 A2 | 3H93 D3 | 3LB8 C3 | 3N09 C4 | 3Q84 F2 | 5G03 F2 | 7A09 A3 | 9A72 B1 | 9Z77 D4 |
| 1M03 F1 | 2C53 A2 | 2L63 B2 | 2004 D3 | 2U01 G1 | 3A36 A3 | 3C74 A2 | 3H94 E3 | 3LB9 C3 | 3N12 C4 | 3Q85 F2 | 5G04 F2 | 7A11 A3 | 9A73 B1 |         |
| 1M15 D4 | 2C84 A2 | 2L64 B2 | 2005 E3 | 2U02 G1 | 3A39 B3 | 3C75 A2 | 3H95 D3 | 3LC0 C3 | 3N13 C4 | 3Q86 F1 | 5G05 F2 | 7A15 B3 | 9A74 B1 |         |
| 1M46 G1 | 2C85 A2 | 2L80 C2 | 2006 E2 | 2U03 G1 | 3A40 A3 | 3C76 A2 | 3H97 E3 | 3LC1 C3 | 3N14 C4 | 3Q87 E2 | 5H01 D2 | 7A16 B3 | 9A80 B3 |         |
| 1M52 A1 | 2C86 A2 | 2L81 C2 | 2007 E3 | 2U04 G1 | 3A46 A3 | 3C80 A2 | 3H98 E2 | 3LC2 B3 | 3N15 C4 | 3Q88 E2 | 5J00 B3 | 7A17 B2 | 9A81 A3 |         |
| 1M59 E1 | 2G00 F1 | 2L82 B2 | 2008 E3 | 2U05 G1 | 3A47 A3 | 3G01 F1 | 3H99 E2 | 3LC3 B3 | 3N30 C4 | 3Q89 E1 | 5J01 B3 | 7B03 C4 | 9A88 B2 |         |
| 1M63 F1 | 2G01 F1 | 2L83 B2 | 2009 E2 | 2U06 G1 | 3A48 A3 | 3G02 F1 | 3J01 B2 | 3LC4 B3 | 3N31 C4 | 3Q90 E2 | 5J02 B3 | 7B12 B4 | 9B00 C4 |         |
| 1M64 C2 | 2G02 F1 | 2L84 B2 | 2010 E3 | 2U07 G1 | 3A49 A3 | 3G03 F1 | 3J03 B3 | 3LC5 C2 | 3N32 C4 | 3Q91 E2 | 5J03 B3 | 7B13 B4 | 9B11 C4 |         |
| 1N00 C4 | 2G03 F1 | 2L85 C2 | 2011 E3 | 2U17 G2 | 3A50 A3 | 3G05 F1 | 3J07 B3 | 3LC6 B3 | 3N33 C4 | 3Q92 D1 | 5J04 B2 | 7C00 A2 | 9B12 B4 |         |
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| 1O00 D4 | 2G05 F1 | 2L87 C2 | 2013 D3 | 2U24 G2 | 3A52 B2 | 3G13 G1 | 3J09 B3 | 3LC8 C3 | 3N92 C4 | 3Q94 F1 | 5J06 B3 | 7C56 A2 | 9B14 B4 |         |
| 1O10 D4 | 2G06 F2 | 2L88 B2 | 2Q14 E3 | 2U25 G2 | 3A53 B2 | 3G14 G1 | 3J11 B3 | 3LC9 C3 | 3O00 D4 | 3Q96 D1 | 5J07 B3 | 7C57 A2 | 9B15 B4 |         |
| 1P01 G4 | 2G07 F2 | 2L89 C2 | 2Q15 E3 | 2U27 G2 | 3A54 B2 | 3G20 F2 | 3J12 B3 | 3LD0 C3 | 3O01 D4 | 3Q99 E1 | 5J10 C1 | 7G01 F1 | 9B16 C4 |         |
| 1T04 B4 | 2G08 F2 | 2L90 C2 | 2Q16 E3 | 2U28 G2 | 3A55 A3 | 3G21 F2 | 3J13 B2 | 3LD1 C3 | 3O02 D4 | 3T50 A4 | 5J11 C1 | 7G02 F2 | 9B17 C4 |         |
| 1T05 B4 | 2G09 F1 | 2L91 C2 | 2Q17 D2 | 2U29 G2 | 3A57 A3 | 3G23 F1 | 3J23 C1 | 3LD2 C3 | 3O03 D4 | 3T51 A4 | 5J12 C1 | 7G03 F2 | 9B18 C4 |         |
| 1T06 B4 | 2G10 F2 | 2L92 B2 | 2Q18 E3 | 2U30 G2 | 3A58 A3 | 3G25 F1 | 3J24 C1 | 3LD3 B3 | 3O04 D4 | 3U20 G2 | 5J50 C1 | 7G07 F2 | 9B19 C4 |         |
| 1U01 G1 | 2G11 G2 | 2LA0 B3 | 2Q19 E3 | 2U34 G3 | 3A66 A3 | 3G26 F1 | 3J31 B1 | 3LD4 C3 | 3O05 C4 | 3U21 G3 | 5J52 C1 | 7G31 F1 | 9B32 B4 |         |
| 1U03 G2 | 2G12 F2 | 2LA1 B3 | 2Q20 E3 | 2U35 G2 | 3A70 A3 | 3G27 F1 | 3J32 B1 | 3LD5 C3 | 3O06 D4 | 3U25 G2 | 5J54 C1 | 7G33 F2 | 9C47 A1 |         |
| 1U04 G1 | 2G13 F2 | 2LA2 C3 | 2Q21 D2 | 2U36 G2 | 3A78 B2 | 3G32 F1 | 3J42 C1 | 3LD6 C3 | 3O07 D4 | 3U40 G2 | 5J56 C1 | 7G34 F1 | 9C48 B1 |         |
| 1Z05 E4 | 2G14 G2 | 2LA4 B3 | 2Q22 D3 | 2U42 G2 | 3A79 B1 | 3G34 F1 | 3J43 C1 | 3LD7 C3 | 3O08 D4 | 3U44 G2 | 5J58 C1 | 7G35 F1 | 9G10 F2 |         |
| 1Z10 E4 | 2G15 F1 | 2LA5 B3 | 2Q23 D2 | 2U45 G2 | 3A87 B3 | 3G35 F1 | 3J44 C1 | 3LD8 C3 | 3O09 D4 | 3U47 G2 | 5J60 C1 | 7G36 F1 | 9G11 F2 |         |
| 1Z11 E4 | 2G16 G2 | 2LA6 B3 | 2Q24 E3 | 2U46 G3 | 3A88 B3 | 3G51 F1 | 3J45 C1 | 3LD9 C3 | 3O10 D4 | 3U48 G2 | 5J82 B1 | 7J01 C3 | 9G12 F2 |         |
| 2A20 A2 | 2G17 G2 | 2LA7 B3 | 2Q25 E3 | 2U50 G2 | 3A89 B2 | 3G52 F1 | 3J46 C1 | 3LE0 C3 | 3O11 D4 | 3U49 G2 | 5J85 B1 | 7J02 C3 | 9G13 F2 |         |
| 2A21 A2 | 2G18 F2 | 2LA8 B3 | 2Q26 E3 | 2U58 G2 | 3A90 B3 | 3G55 F1 | 3J47 C1 | 3LE2 C3 | 3O12 D4 | 3U50 G2 | 5L01 C3 | 7J04 B1 | 9G30 F1 |         |
| 2A22 B2 | 2G19 F2 | 2LA9 B3 | 2Q27 E3 | 2U59 F3 | 3A91 B3 | 3G56 F1 | 3J49 C1 | 3LE3 C3 | 3O13 D4 | 3U51 G2 | 5L50 C2 | 7J09 C2 | 9G35 F2 |         |
| 2A23 B2 | 2G20 F2 | 2LBO C3 | 2Q28 E3 | 2V02 E2 | 3A95 B3 | 3G61 F1 | 3J50 C1 | 3LE4 C3 | 3O14 D4 | 3U58 G3 | 5L51 C2 | 7L50 B1 | 9G50 F2 |         |
| 2A24 B2 | 2G21 F2 | 2LB1 C3 | 2Q29 E3 | 2V03 E2 | 3A97 B2 | 3G62 F2 | 3J51 C1 | 3LE5 C3 | 3O15 D4 | 3U59 G3 | 5L52 C2 | 7LA3 B3 | 9G51 F1 |         |
| 2A31 A1 | 2G22 F1 | 2LB3 C3 | 2Q30 E3 | 2V04 F2 | 3A98 B2 | 3G63 F2 | 3J52 C2 | 3LE6 C3 | 3O16 D4 | 3U79 F3 | 5LA1 C3 | 7LA4 C3 | 9H03 E3 |         |
| 2A32 A3 | 2G23 F1 | 2LB4 C3 | 2Q31 E3 | 2V05 F2 | 3A99 B2 | 3G64 F2 | 3J53 C2 | 3LE7 C3 | 3O21 D4 | 3U81 F2 | 5LA2 C3 | 7LA5 B3 | 9H04 E2 |         |
| 2A80 B1 | 2G24 F2 | 2LB5 C3 | 2Q32 E3 | 2V06 E3 | 3AA1 A3 | 3G65 F2 | 3J55 C2 | 3LE8 C3 | 3O22 D4 | 3U84 G2 | 5LA3 B3 | 7LA7 B3 | 9H05 D3 |         |
| 2A85 A3 | 2G25 F1 | 2LB6 C3 | 2Q33 E3 | 2V07 E3 | 3AA2 B3 | 3G66 F2 | 3J56 C2 | 3LE9 C3 | 3O23 D4 | 3U8A G2 | 5LNO C3 | 7LB3 C2 | 9H06 D2 |         |
| 2A86 A3 | 2G26 F2 | 2LB7 B3 | 2Q34 E3 | 2V08 E3 | 3AA4 A1 | 3G67 F2 | 3J68 C1 | 3LF0 C3 | 3O24 D4 | 3U87 G3 | 5LN1 B3 | 7LB6 C2 | 9H15 E3 |         |
| 2A87 A3 | 2G27 G2 | 2LB8 B3 | 2Q35 E3 | 2V09 E3 | 3AA6 B1 | 3G70 F2 | 3J91 C1 | 3LF1 C1 | 3O25 D4 | 3U8B G2 | 5LN2 C3 | 7LB7 C2 | 9H16 E2 |         |
| 2A88 A3 | 2G28 F2 | 2LN2 B3 | 2Q36 D1 | 2V35 E2 | 3B14 C4 | 3G71 F2 | 3J42 B2 | 3LF2 C3 | 3O26 D4 | 3V44 E2 | 5LN3 C3 | 7N10 C4 | 9H18 E3 |         |
| 2A91 B2 | 2G36 F1 | 2LN3 B3 | 2Q37 E3 | 2V36 D2 | 3B15 C4 | 3G72 F1 | 3L00 C3 | 3LF3 C3 | 3O27 D4 | 3V45 D2 | 5LN4 B3 | 7Q06 F2 | 9H19 E3 |         |
| 2A96 B3 | 2G37 F1 | 2LN4 C3 | 2Q38 E3 | 2V37 D2 | 3B16 C4 | 3G73 F1 | 3L01 C3 | 3LF4 C3 | 3O28 D4 | 3V46 D2 | 5N00 C4 | 7U01 G2 | 9H26 E3 |         |
| 2AA0 A2 | 2G40 G2 | 2LN5 C3 | 2Q39 E3 | 2V38 D2 | 3B17 C4 | 3G74 F1 | 3L02 C3 | 3LF5 B3 | 3Q00 E3 | 3V78 E2 | 5N01 C4 | 7U03 G2 | 9H27 E3 |         |
| 2AA1 A3 | 2G41 G2 | 2LN6 C3 | 2Q40 E2 | 2V42 E2 | 3B18 C4 | 3G75 F2 | 3L03 C3 | 3LF6 B3 | 3Q03 E2 | 3Z01 E4 | 5N02 C4 | 7U08 G2 | 9H29 E3 |         |
| 2AA2 A3 | 2G42 F2 | 2LN7 B3 | 2Q41 F1 | 2V43 E2 | 3B19 C4 | 3G76 F1 | 3L08 C3 | 3LF8 B3 | 3Q04 E2 | 3Z07 E4 | 5000 D4 | 7U09 G2 | 9H30 E3 |         |
| 2AA4 A2 | 2G43 G2 | 2LN8 B3 | 2Q42 D3 | 2V44 E2 | 3B20 C4 | 3G82 F1 | 3L09 C3 | 3LF9 C3 | 3Q05 F2 | 3Z08 E4 | 5001 D4 | 7U16 G1 | 9H32 E3 |         |
| 2AB4 A2 | 2G44 F2 | 2LP0 C3 | 2Q43 E2 | 2V45 E2 | 3B24 B4 | 3G83 F1 | 3L10 C2 | 3LG3 C3 | 3Q06 E3 | 3Z12 E4 | 5001 D2 | 7U26 G2 | 9H33 E3 |         |
| 2B04 C4 | 2G45 F2 | 2LP2 B3 | 2Q44 E2 | 2V46 E2 | 3B25 C4 | 3G84 F1 | 3L11 C2 | 3LG5 B3 | 3Q07 F2 | 3Z13 E4 | 5002 E2 | 7V01 E2 | 9H34 E3 |         |
| 2B05 C4 | 2G46 F1 | 2LP3 B2 | 2Q45 E2 | 2V47 E1 | 3B26 C4 | 3G85 F1 | 3L12 C2 | 3LG6 B3 | 3Q08 F2 | 3Z18 E4 | 5003 D2 | 7V02 E2 | 9J15 B1 |         |
| 2B21 B4 | 2G47 F2 | 2LP4 C2 | 2Q46 E2 | 2V48 E2 | 3B27 C4 | 3G86 F1 | 3L13 C2 | 3LG7 C3 | 3Q09 E3 | 3Z20 E4 | 5004 E3 | 7Z01 E4 | 9J16 B1 |         |
| 2B22 B4 | 2G48 F1 | 2LP7 C3 | 2Q47 E2 | 2V49 E2 | 3B28 C4 | 3G87 F1 | 3L14 C2 | 3LG8 B3 | 3Q11 E3 | 3Z21 E4 | 5Q05 E3 | 9A01 A1 | 9J17 B1 |         |
| 2B23 B4 | 2G49 F1 | 2LP8 C3 | 2Q48 D2 | 2V50 D1 | 3B29 C4 | 3G89 F2 | 3L15 C2 | 3LG9 B3 | 3Q12 E3 | 3Z22 E4 | 5009 E1 | 9A02 A1 | 9J24 B3 |         |
| 2B24 B4 | 2G50 F2 | 2LP9 B2 | 2Q49 D3 | 2V51 D2 | 3B30 B4 | 3G90 F2 | 3L16 C3 | 3LH0 C2 | 3Q13 E3 | 3Z23 E4 | 5Q10 E1 | 9A03 A1 | 9LA0 B3 |         |
| 2B25 B4 | 2G51 F2 | 2LR0 C3 | 2Q50 D3 | 2V52 D2 | 3B31 C4 | 3G91 F2 | 3L17 C2 | 3LH1 C2 | 3Q14 E3 | 3Z24 E4 | 5U00 G3 | 9A04 A1 | 9LA1 B3 |         |
| 2B26 B4 | 2G52 G2 | 2LR2 C3 | 2Q51 E2 | 2V53 D2 | 3B32 B4 | 3G92 G2 | 3L18 C2 | 3LH3 B2 | 3Q15 E3 | 3Z25 E4 | 5U01 G1 | 9A05 A1 | 9LA2 B3 |         |
| 2B27 B4 | 2G53 F2 | 2LR4 B3 | 2Q52 E2 | 2V54 D2 | 3B33 C4 | 3G93 G2 | 3L19 C3 | 3LH4 B2 | 3Q17 D1 | 3Z26 E4 | 5U02 G1 | 9A06 A1 | 9LA3 C3 |         |
| 2B28 B4 | 2G54 F2 | 2LR5 C3 | 2Q53 D3 | 2V55 D2 | 3B34 B4 | 3G94 F2 | 3L21 C3 | 3LH5 C3 | 3Q18 D1 | 3Z27 E4 | 5U03 G2 | 9A07 A1 | 9LA6 B3 |         |
| 2B29 B4 | 2G55 F2 | 2LR6 C3 | 2Q54 D2 | 2V56 E2 | 3B35 B4 | 3G95 F2 | 3L23 C3 | 3LH6 B3 | 3Q19 D1 | 3Z28 E4 | 5U04 G1 | 9A09 B1 | 9LA8 B2 |         |
| 2B30 B4 | 2G56 G2 | 2LR8 C2 | 2Q55 D2 | 2V57 E2 | 3B36 B4 | 3H01 E3 | 3L25 C3 | 3LH8 B3 | 3Q22 D1 | 3Z29 E4 | 5U05 G1 | 9A10 B1 | 9LA9 B2 |         |
| 2B31 B4 | 2G57 F1 | 2LR9 C3 | 2Q56 D2 | 2V58 E2 | 3B37 C4 | 3H02 E2 | 3L27 C3 | 3LH9 B3 | 3Q25 F2 | 3Z30 E4 | 5U06 G1 | 9A11 A1 | 9LCS C2 |         |
| 2B32 B4 | 2G58 F1 | 2LSS B3 | 2Q57 E2 | 2V59 D3 | 3B38 C4 | 3H03 D2 | 3L29 C3 | 3LJO C3 | 3Q26 F2 | 3Z33 E4 | 5U07 G1 | 9A12 B2 | 9LCS C3 |         |
| 2B33 B4 | 2G59 F2 | 2LTO C3 | 2Q58 E2 | 2V60 E2 | 3B39 B4 | 3H06 E3 | 3L31 C3 | 3LJ1 C3 | 3Q27 E2 | 3Z35 E4 | 5U08 G1 | 9A13 B1 | 9LCT C3 |         |
| 2B34 B4 | 2G60 F1 | 2LT2 C2 | 2Q59 D2 | 2V61 E3 | 3B41 C4 | 3H07 E3 | 3L33 C3 | 3LJ2 B2 | 3Q28 F2 | 3Z37 E4 | 5U09 G3 | 9A14 B1 | 9LCS C3 |         |
| 2B35 B4 | 2H01 D2 | 2N00 C4 | 2Q63 D2 | 2V62 E3 | 3B43 C4 | 3H08 D2 | 3L35 C3 | 3LJ3 B3 | 3Q33 D3 | 3Z38 E4 | 5V01 E2 | 9A15 B2 | 9LC9 B3 |         |
| 2B36 B4 | 2H06 E3 | 2N01 C4 | 2Q64 E2 | 2V63 E3 | 3B45 C4 | 3H09 E2 | 3L36 C2 | 3LJ4 C3 | 3Q34 F2 | 3Z40 E4 | 5V02 E2 | 9A16 D2 | 9O16 D4 |         |
| 2B39 C4 | 2H07 E3 | 2N02 C4 | 2Q65 D2 | 2V64 E3 | 3B48 B4 | 3H10 E2 | 3L37 C2 | 3LJ5 C3 | 3Q35 D3 | 3Z41 E4 | 5Z00 E4 | 9A17 B2 | 9Q19 E1 |         |
| 2B40 B4 | 2H08 D2 | 2N03 C4 | 2Q66 E3 | 2V65 E3 | 3B49 B4 | 3H11 E2 | 3L38 C3 | 3LJ6 C3 |         |         |         |         |         |         |



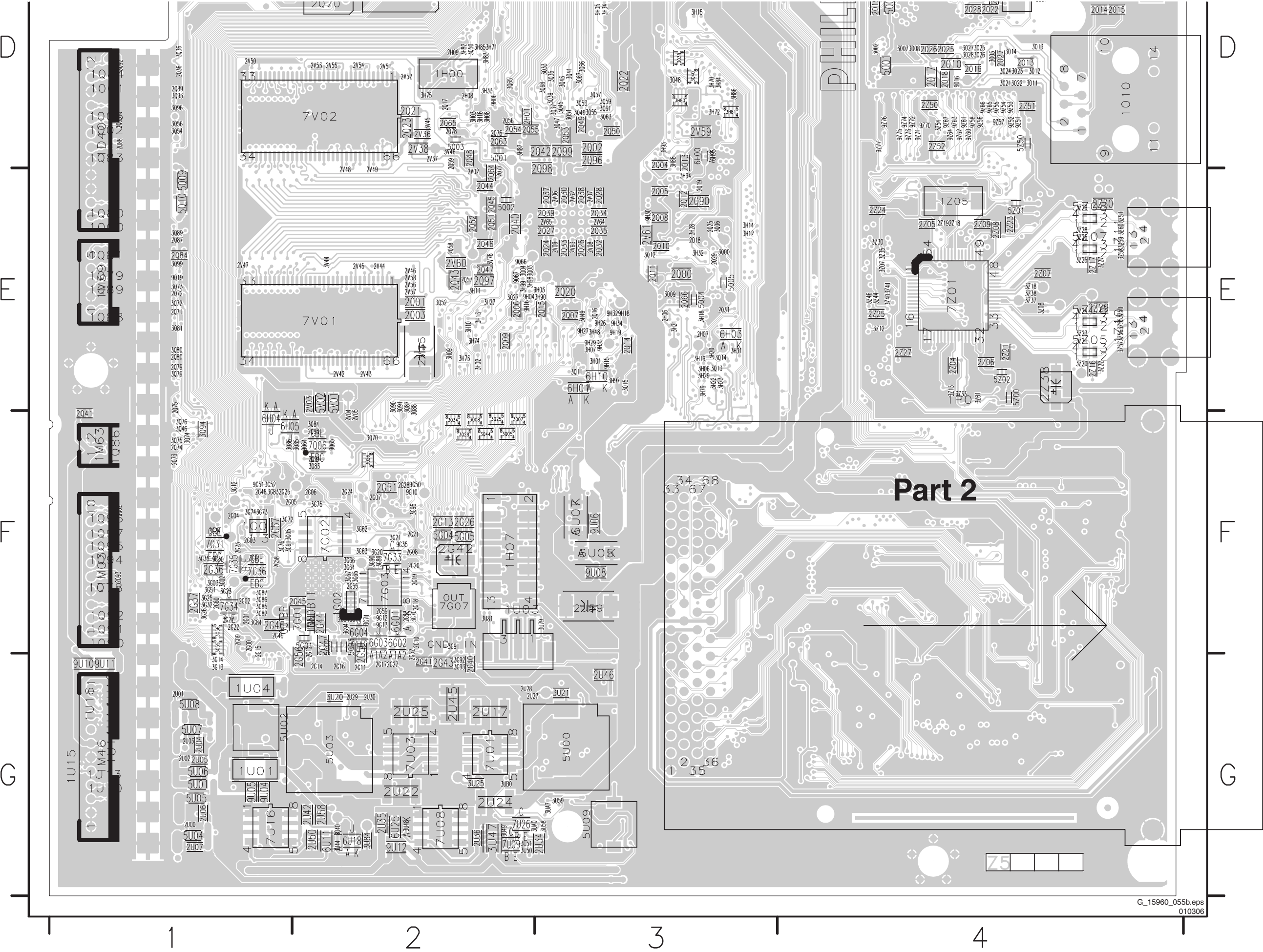


# Part 1

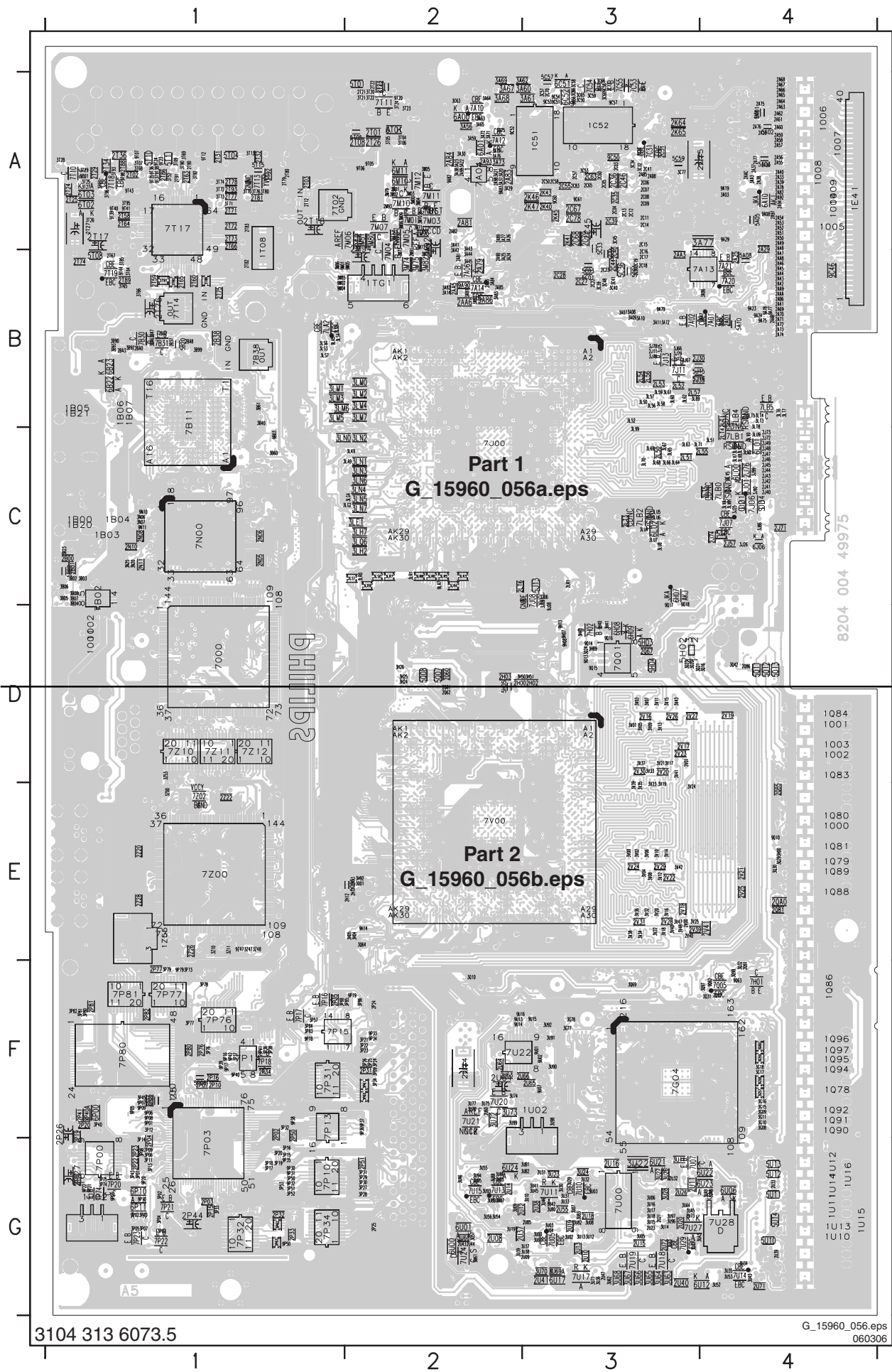
# Scotiabank



Layout SSB (Top Side Part 2)



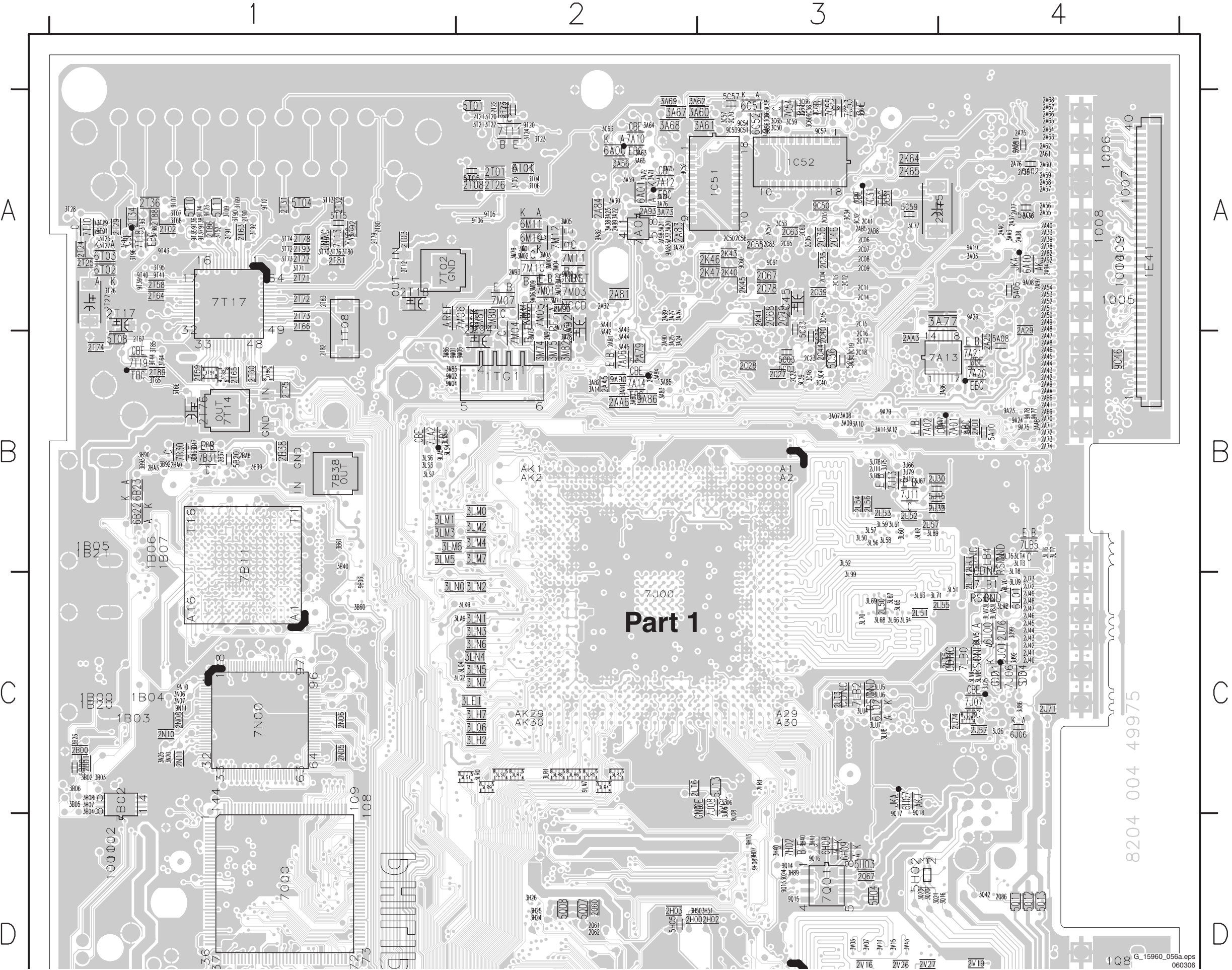
Layout SSB (Overview Bottom Side)



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| 1C51 A3 | 2C16 B3 | 2P23 G1 | 2U60 F2 | 3B93 B1 | 3LN5 C2 | 3P38 F1 | 3U22 G3 | 3V36 E3 | 7B30 B1 | 9C51 A3 |
| 1C52 A3 | 2C17 B3 | 2P24 F2 | 2U61 F2 | 3B99 B1 | 3LN6 C2 | 3P40 F1 | 3U23 G3 | 3V37 D3 | 7B31 B1 | 9C52 A2 |
| 1E41 A4 | 2C18 B3 | 2P25 G2 | 2U63 F2 | 3C30 A3 | 3LN7 C2 | 3P43 G1 | 3U24 G3 | 3V38 E3 | 7B38 B1 | 9C53 A3 |
| 1P02 G1 | 2C19 B3 | 2P26 F1 | 2U64 F2 | 3C32 A3 | 3LQ6 C2 | 3P45 F1 | 3U26 G3 | 3V39 E3 | 7C31 A3 | 9C54 A3 |
| 1T08 A1 | 2C20 B3 | 2P27 G1 | 2U65 F3 | 3C34 A3 | 3LR0 C2 | 3P50 G1 | 3U27 G3 | 3V40 E3 | 7C53 A3 | 9C56 A3 |
| 1TG1 B2 | 2C22 B3 | 2P31 F2 | 2U66 F3 | 3C39 B3 | 3LR1 C2 | 3P51 G1 | 3U28 G3 | 3V41 D3 | 7C54 A3 | 9C57 A3 |
| 1U02 F3 | 2C23 B3 | 2P32 G1 | 2U71 G4 | 3C40 B3 | 3LR3 C2 | 3P52 G1 | 3U29 G3 | 3V42 E3 | 7C55 A3 | 9C58 A3 |
| 1Z55 E1 | 2C27 B3 | 2P33 G1 | 2U72 G3 | 3C41 B3 | 3LR4 C2 | 3P53 G1 | 3U30 G3 | 3V43 D3 | 7G04 F4 | 9C60 A3 |
| 2A01 B4 | 2C28 B3 | 2P34 F1 | 2U73 G3 | 3C45 A3 | 3LR5 C2 | 3P57 F1 | 3U31 G3 | 3V47 E3 | 7H01 F4 | 9C61 A3 |
| 2A25 B4 | 2C31 A3 | 2P35 F1 | 2U74 F2 | 3C48 B3 | 3LR6 C2 | 3P60 F2 | 3U32 G3 | 3V48 E3 | 7H02 D3 | 9H07 D3 |
| 2A29 A4 | 2C35 A3 | 2P40 F1 | 2U85 G3 | 3C50 A3 | 3LR7 C2 | 3P61 F2 | 3U33 G3 | 3Z00 E1 | 7J00 C2 | 9H08 D3 |
| 2A33 A4 | 2C36 A3 | 2P41 F1 | 2V00 E3 | 3C53 A3 | 3LR8 C2 | 3P62 G1 | 3U34 G4 | 3Z10 E1 | 7J06 C4 | 9H13 D3 |
| 2A34 A4 | 2C39 A3 | 2P44 G1 | 2V01 D3 | 3C56 A3 | 3LR9 C2 | 3P63 G1 | 3U35 G4 | 3Z11 E1 | 7J07 C4 | 9H14 E2 |
| 2A35 A4 | 2C40 B3 | 2P50 F1 | 2V16 D3 | 3C57 A3 | 3LS0 C2 | 3P73 F1 | 3U36 G3 | 3Z47 E1 | 7J08 C3 | 9H40 D3 |
| 2A36 A4 | 2C41 A3 | 2P51 G2 | 2V17 D3 | 3C58 A3 | 3LS1 C2 | 3P74 G1 | 3U37 G3 | 3Z48 E1 | 7J11 B3 | 9J08 D3 |
| 2A37 A4 | 2C44 B3 | 2P76 F1 | 2V18 E3 | 3C59 A3 | 3LS3 B1 | 3P75 G1 | 3U38 G3 | 3Z53 D1 | 7J13 B3 | 9LA5 B1 |
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| 2A39 A4 | 2C46 A3 | 2P80 F1 | 2V20 D3 | 3C61 A3 | 3LS5 B1 | 3P77 F1 | 3U41 G3 | 5A02 A4 | 7LB0 C4 | 9M00 A2 |
| 2A40 A4 | 2C50 A3 | 2P81 F1 | 2V21 E4 | 3C63 A2 | 3LS6 B1 | 3P78 F1 | 3U42 G3 | 5A03 A4 | 7LB1 C4 | 9M01 B1 |
| 2A41 B4 | 2C55 A3 | 2P82 F1 | 2V22 E3 | 3C65 A3 | 3LS7 B1 | 3P79 F1 | 3U43 G4 | 5A05 A4 | 7LB2 C3 | 9M02 B1 |
| 2A42 B4 | 2C57 A3 | 2Q60 D2 | 2V23 D3 | 3C66 A3 | 3LT3 B4 | 3P80 F1 | 3U45 G3 | 5A08 B4 | 7LB4 B4 | 9M04 B1 |
| 2A43 B4 | 2C58 A3 | 2Q61 D2 | 2V24 E3 | 3C67 A3 | 3LT4 B4 | 3P81 F1 | 3U46 G3 | 5A10 B4 | 7LB5 B4 | 9M05 B2 |
| 2A44 B4 | 2C60 A3 | 2Q62 D2 | 2V25 E4 | 3C77 A3 | 3LT5 B4 | 3P82 F1 | 3U52 G4 | 5B00 C1 | 7M01 A2 | 9M06 A2 |
| 2A45 B4 | 2C63 A3 | 2Q67 D3 | 2V26 D3 | 3G08 F4 | 3LT6 B4 | 3P83 F1 | 3U53 G4 | 5B20 B1 | 7M03 A2 | 9N10 C1 |
| 2A46 B4 | 2C65 A3 | 2Q81 E4 | 2V27 D3 | 3G09 F4 | 3LT7 B4 | 3P84 F1 | 3U54 G2 | 5C01 B3 | 7M04 A2 | 9N11 C1 |
| 2A47 B4 | 2C67 A3 | 2Q85 E4 | 2V28 E3 | 3G10 F4 | 3LT8 B4 | 3P85 F2 | 3U55 G2 | 5C03 B3 | 7M05 B2 | 9P01 F1 |
| 2A48 A4 | 2C68 A3 | 2Q86 D4 | 2V29 E3 | 3G11 F4 | 3LU4 C3 | 3P86 F2 | 3U56 G2 | 5C33 A3 | 7M06 A1 | 9P02 G1 |
| 2A49 A4 | 2C70 A3 | 2Q91 F4 | 2V30 D3 | 3G15 F4 | 3LU5 C3 | 3P88 F1 | 3U57 G2 | 5C35 B3 | 7M07 A2 | 9P03 G1 |
| 2A50 A4 | 2C72 A3 | 2Q92 F4 | 2V31 E3 | 3G16 F4 | 3LU6 C3 | 3Q01 E2 | 3U60 G2 | 5C36 B3 | 7M10 A2 | 9P05 F1 |
| 2A51 A4 | 2C75 A4 | 2QAO E4 | 2V39 E3 | 3G17 F4 | 3LU7 C3 | 3Q10 F2 | 3U61 G2 | 5C57 A3 | 7M11 A2 | 9P06 F1 |
| 2A52 A4 | 2C78 A3 | 2T01 A2 | 2V40 E3 | 3G18 F4 | 3LU8 C3 | 3Q16 D4 | 3U62 G3 | 5C59 A3 | 7M12 A2 | 9P07 F1 |
| 2A53 A4 | 2C79 A3 | 2T02 A1 | 2V41 E4 | 3G57 F4 | 3LU9 C4 | 3Q20 D3 | 3U63 G3 | 5C61 B3 | 7N00 C1 | 9P08 F1 |
| 2A54 A4 | 2C83 A3 | 2T03 A1 | 2Z20 E1 | 3G58 F4 | 3LV0 C4 | 3Q21 D3 | 3U64 G3 | 5H02 D3 | 7O00 D1 | 9P09 F1 |
| 2A55 A4 | 2H00 D2 | 2T08 A2 | 2Z22 E1 | 3G59 F4 | 3LV1 C4 | 3Q23 D3 | 3U65 G3 | 5H03 D3 | 7P00 F1 | 9P10 G1 |
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| 2A57 A4 | 2H03 D2 | 2T17 A1 | 2Z28 E1 | 3G77 F3 | 3LV3 C4 | 3Q29 E4 | 3U67 G3 | 5H05 D2 | 7P10 G2 | 9P17 F1 |
| 2A58 A4 | 2H11 E2 | 2T18 A1 | 3A03 A4 | 3G78 F3 | 3LV4 C4 | 3Q30 E4 | 3U68 G3 | 5J13 C3 | 7P13 F2 | 9P18 F1 |
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| 2A63 A4 | 2J30 B3 | 2T25 A1 | 3A11 B3 | 3H25 D2 | 3M00 A2 | 3Q69 F3 | 3U73 F2 | 5Q06 E2 | 7P18 F1 | 9P30 G1 |
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| 2A66 A4 | 2J41 C4 | 2T29 A1 | 3A20 A2 | 3H41 D3 | 3M03 A2 | 3T04 A2 | 3U76 F2 | 5Q11 D4 | 7P22 G1 | 9P33 F2 |
| 2A67 A4 | 2J42 C4 | 2T31 A1 | 3A21 A2 | 3H50 D2 | 3M04 A2 | 3T05 A2 | 3U77 F2 | 5Q12 D4 | 7P23 G1 | 9P34 F2 |
| 2A68 A4 | 2J43 C4 | 2T32 A1 | 3A22 A2 | 3H51 D3 | 3M05 A2 | 3T06 A2 | 3U80 G3 | 5Q13 D4 | 7P31 F2 | 9P35 G1 |
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| 2A70 B4 | 2J45 C4 | 2T36 A1 | 3A24 B2 | 3H92 E2 | 3M14 A2 | 3T09 A1 | 3U83 G3 | 5T04 A1 | 7P34 G2 | 9P37 F2 |
| 2A71 B4 | 2J46 C4 | 2T38 A1 | 3A25 B2 | 3J05 C3 | 3M70 A2 | 3T13 A1 | 3U85 G2 | 5T05 A2 | 7P74 G1 | 9P38 F1 |
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| 2A73 B4 | 2J48 C4 | 2T60 B1 | 3A27 A2 | 3J25 C4 | 3M72 A2 | 3T21 A2 | 3U87 G2 | 5T10 A1 | 7P77 F1 | 9P40 F1 |
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| 2A75 A4 | 2J57 C4 | 2T64 A1 | 3A30 A2 | 3J28 C4 | 3M74 B2 | 3T23 A2 | 3U89 G2 | 5T12 A2 | 7P81 F1 | 9P42 F1 |
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| 2A82 A4 | 2K40 A3 | 2T73 A1 | 3A44 B2 | 3J79 B3 | 3M80 A2 | 3T29 A1 | 3U95 G2 | 5U14 G4 | 7T13 A1 | 9Q15 D3 |
| 2A83 A2 | 2K41 A3 | 2T74 B1 | 3A45 B2 | 3J86 C4 | 3M81 A2 | 3T52 A1 | 3U96 G3 | 6A00 A2 | 7T14 B1 | 9Q16 D3 |
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| 2A89 A2 | 2K45 A3 | 2T76 B1 | 3A59 A2 | 3J99 C4 | 3M85 B1 | 3T65 B1 | 3U98 F3 | 6A10 A4 | 7T18 A1 | 9Q18 C3 |
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| 2AA3 B3 | 2L53 B3 | 2T86 A1 | 3A68 A2 | 3L60 B3 | 3P03 G1 | 3T74 A1 | 3UA8 G4 | 6J01 C4 | 7U14 G4 | 9T20 A2 |
| 2AA5 B2 | 2L54 B3 | 2T88 A1 | 3A69 A2 | 3L61 B3 | 3P04 G1 | 3T76 A1 | 3UA9 G4 | 6J06 C4 | 7U15 G2 | 9T23 A1 |
| 2AA6 B2 | 2L55 C4 | 2T89 B1 | 3A71 A2 | 3L62 B3 | 3P05 G1 | 3T80 A1 | 3UB1 G3 | 6L00 C4 | 7U17 G3 | 9T24 A1 |
| 2AA8 B4 | 2L56 B3 | 2T90 A1 | 3A72 A2 | 3L63 C3 | 3P06 G1 | 3T82 B1 | 3UB2 G3 | 6L01 C4 | 7U18 G3 | 9T35 A1 |
| 2AA9 B4 | 2L57 B3 | 2T91 A1 | 3A73 A2 | 3L64 C3 | 3P07 G1 | 3T85 B1 | 3V00 E3 | 6L02 C3 | 7U19 G3 | 9T36 A1 |
| 2AAA B4 | 2LR1 C3 | 2T92 A1 | 3A74 A2 | 3L65 C3 | 3P08 G1 | 3T86 B1 | 3V01 D3 | 6M10 A2 | 7U20 F2 | 9T37 A1 |
| 2AAB B4 | 2LT1 B4 | 2T93 A1 | 3A75 A2 | 3L66 C3 | 3P09 F2 | 3T90 A1 | 3V02 E3 | 6M11 A2 | 7U21 F2 | 9T38 A1 |
| 2AAC B4 | 2LT3 C3 | 2U08 G2 | 3A76 A2 | 3L67 C3 | 3P10 G1 | 3T91 B1 | 3V03 D3 | 6P00 F1 | 7U22 F2 | 9T39 A1 |
| 2AB1 B2 | 2LT4 C4 | 2U09 G3 | 3A77 A4 | 3L68 C3 | 3P11 G1 | 3T92 A1 | 3V04 E3 | 6P10 G1 | 7U24 G2 | 9T40 A1 |
| 2AB2 A2 | 2LT5 C4 | 2U10 G3 | 3A80 B2 | 3L69 C3 | 3P12 F1 | 3T93 A1 | 3V05 D3 | 6P11 G1 | 7U27 G4 | 9T41 A1 |
| 2AB3 B2 | 2LT6 C2 | 2U11 G3 | 3A81 B2 | 3L70 C3 | 3P13 G1 | 3T95 A1 | 3V06 E3 | 6T01 A2 | 7U28 G4 | 9T43 A1 |
| 2AB5 A3 | 2M90 A2 | 2U12 G2 | 3A82 B2 | 3L71 C3 | 3P14 G1 | 3T96 A1 | 3V07 D3 | 6T02 A1 | 7U29 G3 | 9T44 B1 |
| 2AB6 B4 | 2M91 B2 | 2U13 G3 | 3A83 B2 | 3L89 B3 | 3P15 G1 | 3T97 A1 | 3V08 E3 | 6T03 A1 | 7V00 E3 | 9U01 F3 |
| 2AB8 A3 | 2M92 B2 | 2U14 G2 | 3A84 B2 | 3L99 C3 | 3P16 G1 | 3T98 A1 | 3V09 D3 | 6U00 G2 | 7Z00 E1 | 9U02 F3 |
| 2B00 C1 | 2M93 A2 | 2U15 G3 | 3A85 B2 | 3LA9 C2 | 3P17 G1 | 3U00 G3 | 3V10 E3 | 6U01 G2 | 7Z02 E1 | 9U03 G3 |
| 2B01 C1 | 2M94 B2 | 2U16 G3 | 3A86 B4 | 3LE1 C2 | 3P18 G1 | 3U01 G3 | 3V11 D3 | 6U06 G4 | 7Z10 D1 | 9U07 F3 |
| 2B37 B1 | 2N05 C1 | 2U18 G3 | 3AA3 A4 | 3LG2 C2 | 3P19 G1 | 3U02 G3 | 3V12 E3 | 6U12 G3 | 7Z11 D1 | 9U13 F2 |
| 2B38 B1 | 2N06 C1 | 2U19 G3 | 3AA5 B4 | 3LG4 C2 |         |         |         |         |         |         |



Layout SSB (Bottom Side Part 1)

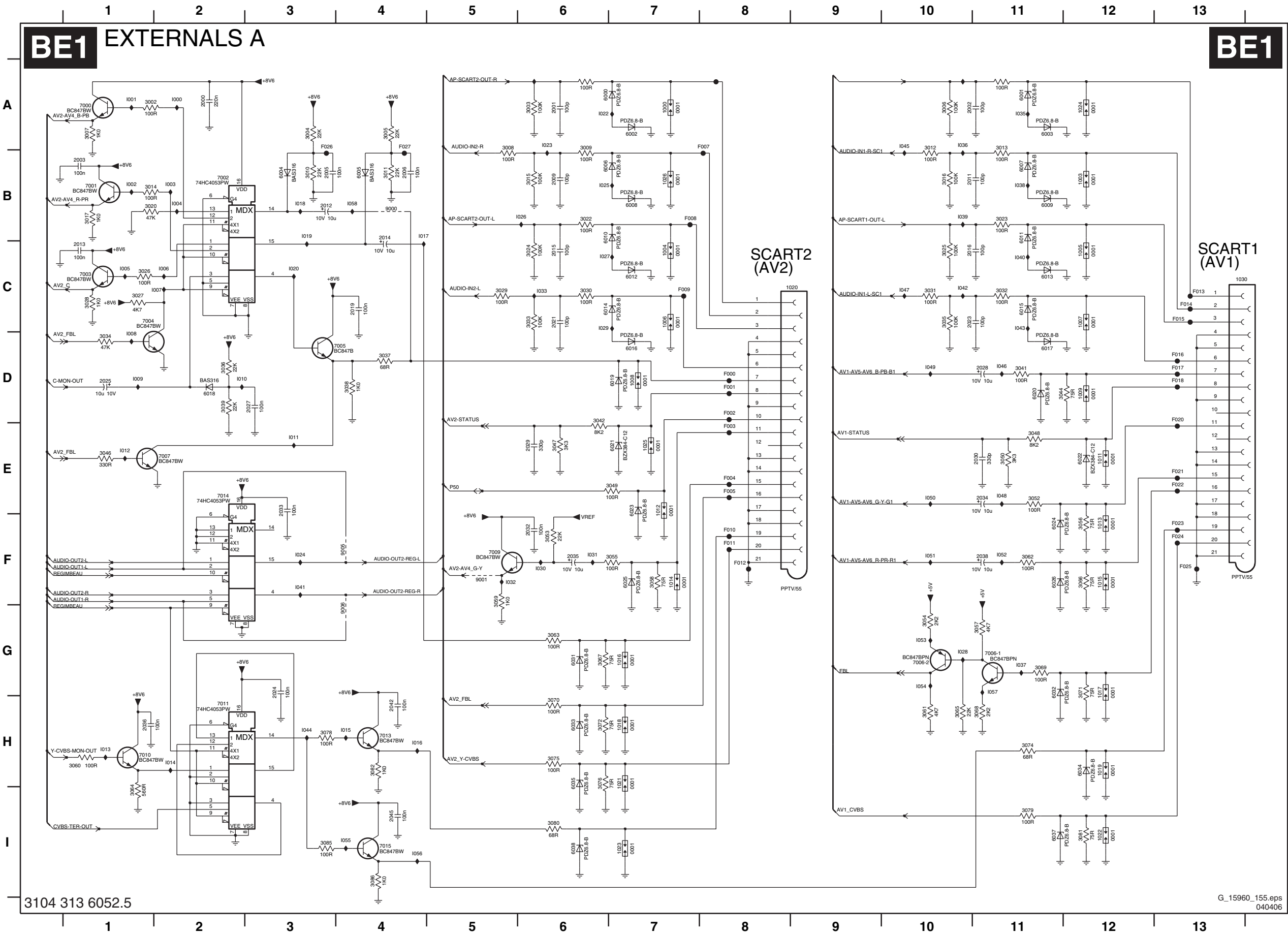


## G





Externals: A



|          |            |          |
|----------|------------|----------|
| 1000 A7  | 3055 F7    | F023 F13 |
| 1003 B12 | 3056 F12   | F024 F13 |
| 1004 C7  | 3057 G11   | F025 F13 |
| 1005 C12 | 3058 F7    | F026 A3  |
| 1006 C7  | 3059 F5    | F027 A4  |
| 1007 C12 | 3060 H1    | I000 A2  |
| 1008 D7  | 3061 H10   | I001 A1  |
| 1009 D12 | 3062 F11   | I002 B1  |
| 1011 E12 | 3063 G6    | I003 B2  |
| 1012 E7  | 3064 I1    | I004 B2  |
| 1013 F12 | 3065 H10   | I005 C1  |
| 1014 F7  | 3066 F12   | I006 C2  |
| 1015 F12 | 3067 G6    | I007 C2  |
| 1016 G7  | 3068 H11   | I008 D1  |
| 1017 G12 | 3069 G11   | I009 D1  |
| 1018 H7  | 3070 H6    | I010 D2  |
| 1019 H12 | 3071 G12   | I011 E3  |
| 1020 C8  | 3072 H6    | I012 E1  |
| 1021 H7  | 3074 H11   | I013 H1  |
| 1022 H12 | 3075 H6    | I014 H2  |
| 1023 I7  | 3076 H6    | I015 H4  |
| 1024 A12 | 3078 H3    | I016 H4  |
| 1025 E7  | 3079 I11   | I017 B4  |
| 1026 B7  | 3080 I6    | I018 B3  |
| 1030 C13 | 3081 I12   | I019 B3  |
| 2000 A2  | 3082 H4    | I020 C3  |
| 2001 A6  | 3085 I3    | I021 A6  |
| 2002 A10 | 3086 I4    | I022 A6  |
| 2003 B1  | 6000 A6    | I023 A6  |
| 2005 B3  | 6001 A11   | I024 F3  |
| 2006 B4  | 6002 A7    | I025 B6  |
| 2009 B6  | 6003 A11   | I026 B6  |
| 2011 B10 | 6004 B3    | I027 C6  |
| 2012 B3  | 6005 B4    | I028 G10 |
| 2013 C1  | 6006 B6    | I029 C6  |
| 2014 B4  | 6007 B11   | I030 F6  |
| 2015 C6  | 6008 B7    | I031 F6  |
| 2016 C10 | 6009 B11   | I032 F5  |
| 2019 C4  | 6010 B6    | I033 C6  |
| 2021 C6  | 6011 B11   | I034 A10 |
| 2023 C10 | 6012 C7    | I035 A11 |
| 2024 G3  | 6013 C11   | I036 A10 |
| 2025 D1  | 6014 C6    | I037 G11 |
| 2027 D3  | 6015 C11   | I038 B11 |
| 2028 D11 | 6016 D7    | I039 B10 |
| 2029 E6  | 6017 D11   | I040 C11 |
| 2030 E11 | 6018 D2    | I041 F3  |
| 2032 F6  | 6019 D7    | I042 C10 |
| 2033 E3  | 6020 D11   | I043 C11 |
| 2034 E11 | 6021 E7    | I044 H3  |
| 2035 F6  | 6022 E12   | I045 A10 |
| 2036 H1  | 6023 E7    | I046 D11 |
| 2038 F11 | 6024 F11   | I047 C10 |
| 2042 H4  | 6025 F7    | I048 E11 |
| 2045 I4  | 6026 F11   | I049 D10 |
| 3000 A6  | 6031 G6    | I050 E10 |
| 3001 A11 | 6032 G11   | I051 F10 |
| 3002 A1  | 6033 H6    | I052 F11 |
| 3003 A6  | 6034 H12   | I053 G10 |
| 3004 A3  | 6035 H6    | I054 G10 |
| 3005 A4  | 6037 I11   | I055 I4  |
| 3006 A10 | 6038 I6    | I056 I4  |
| 3007 A1  | 7000 A1    | I057 G11 |
| 3008 A5  | 7001 B1    | I058 B4  |
| 3009 A6  | 7002 B2    |          |
| 3010 B3  | 7003 C1    |          |
| 3011 B4  | 7004 C1    |          |
| 3012 A10 | 7005 D3    |          |
| 3013 A11 | 7006-1 G11 |          |
| 3014 B1  | 7006-2 G10 |          |
| 3015 B6  | 7007 E2    |          |
| 3016 B10 | 7009 F5    |          |
| 3017 B1  | 7010 H1    |          |
| 3020 B1  | 7011 H2    |          |
| 3022 B6  | 7013 H4    |          |
| 3023 B11 | 7014 E2    |          |
| 3024 C6  | 7015 I4    |          |
| 3025 C10 | 9000 B4    |          |
| 3026 C1  | 9001 F5    |          |
| 3027 C1  | 9005 F4    |          |
| 3028 C1  | 9006 G4    |          |
| 3029 C5  | F000 D8    |          |
| 3030 C6  | F001 D8    |          |
| 3031 C10 | F002 D8    |          |
| 3032 C11 | F003 E8    |          |
| 3033 C6  | F004 E8    |          |
| 3034 D1  | F005 E8    |          |
| 3035 C10 | F006 A8    |          |
| 3036 D2  | F007 A8    |          |
| 3037 D4  | F008 B7    |          |
| 3038 D4  | F009 C7    |          |
| 3039 D2  | F010 F8    |          |
| 3041 D11 | F011 F8    |          |
| 3042 D6  | F012 F8    |          |
| 3044 D11 | F013 C13   |          |
| 3046 E1  | F014 C13   |          |
| 3047 E6  | F015 C13   |          |
| 3048 E11 | F016 D13   |          |
| 3049 E7  | F017 D13   |          |
| 3050 E11 | F018 D13   |          |
| 3052 E11 | F020 D13   |          |
| 3053 F6  | F021 E13   |          |
| 3054 G10 | F022 E13   |          |

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Externals: B

BE2 EXTERNALS B

BE2

SIDE I/O

TO SSB

TO SSB

LED PANEL

AUDIO-OUT-L

AUDIO-OUT-R

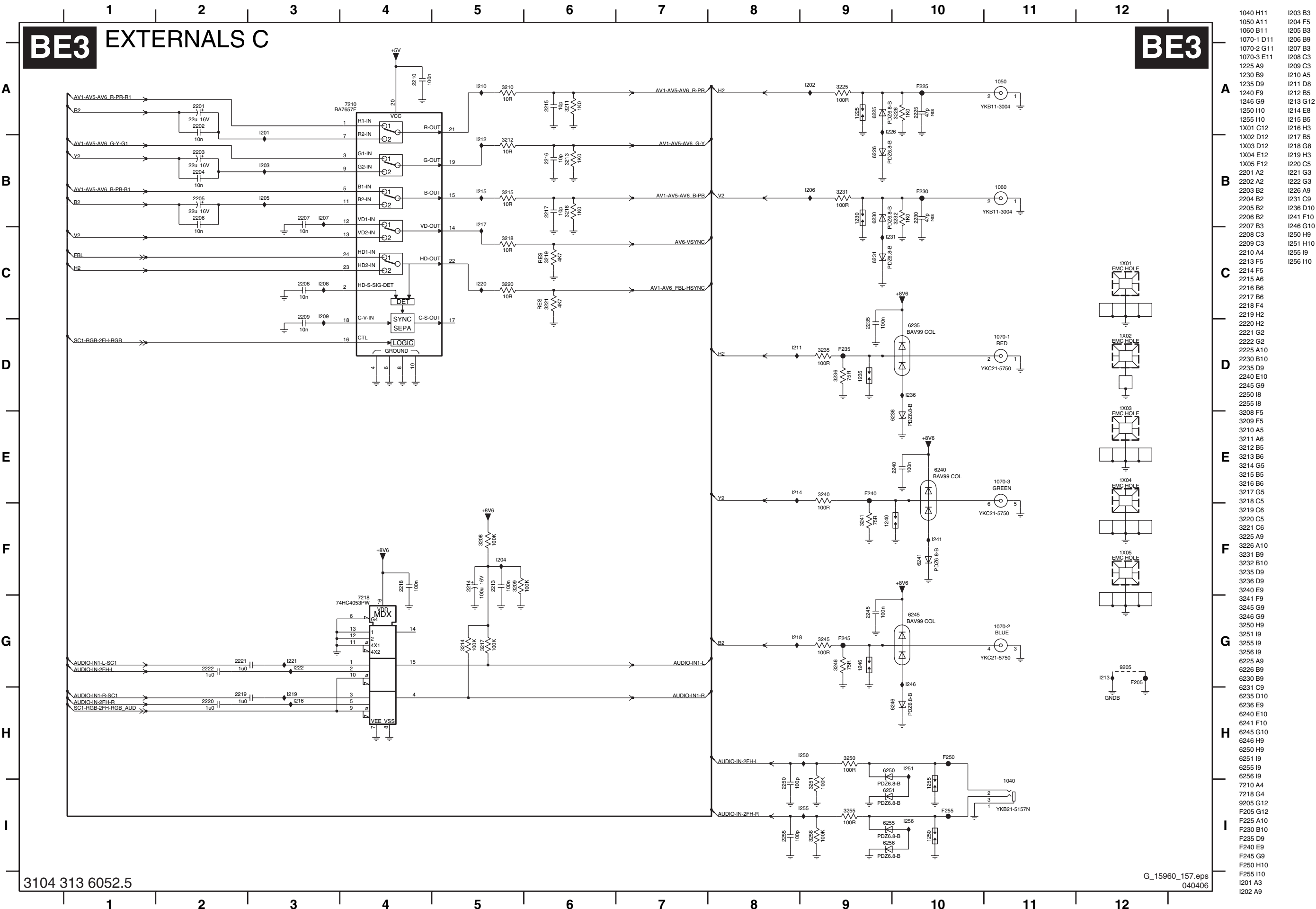
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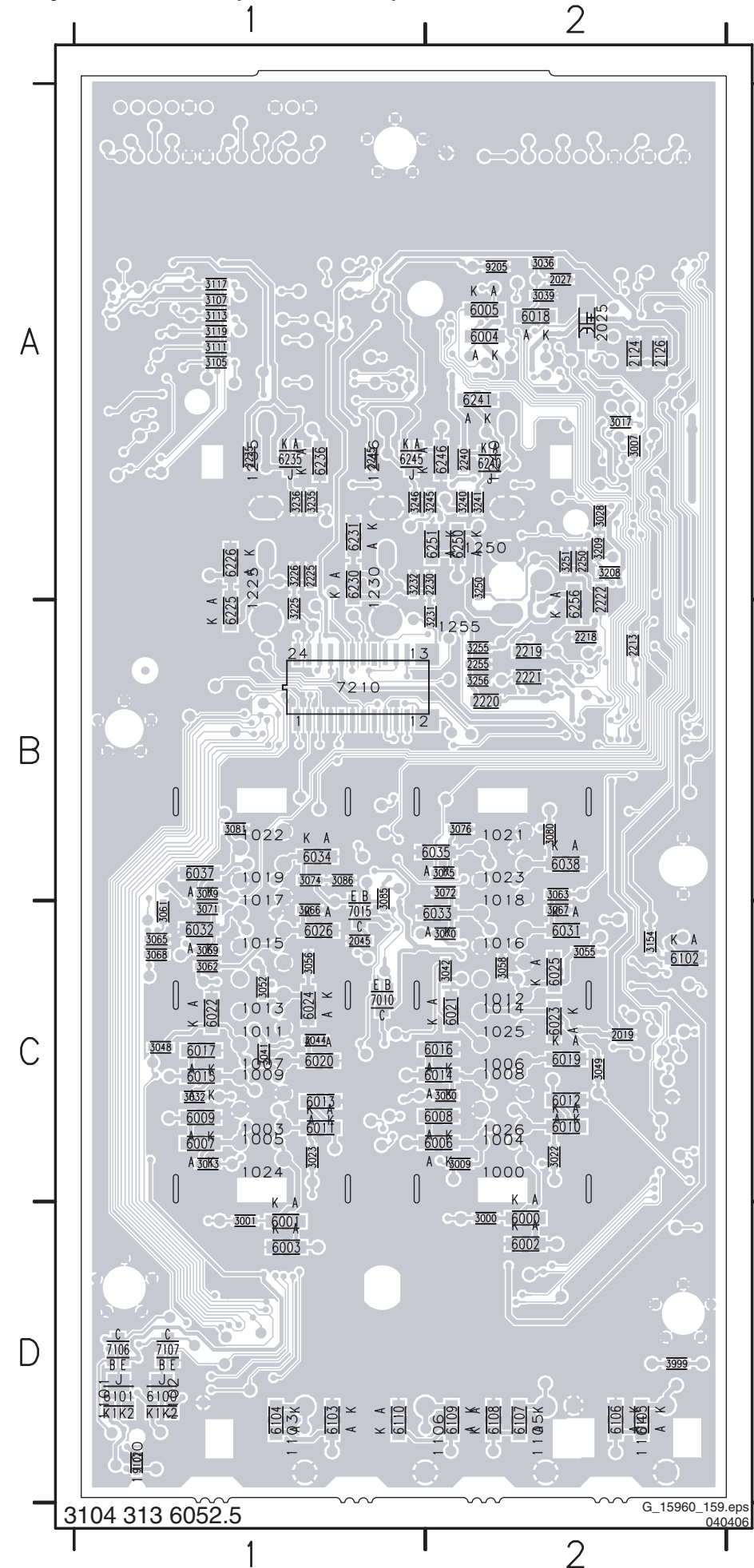
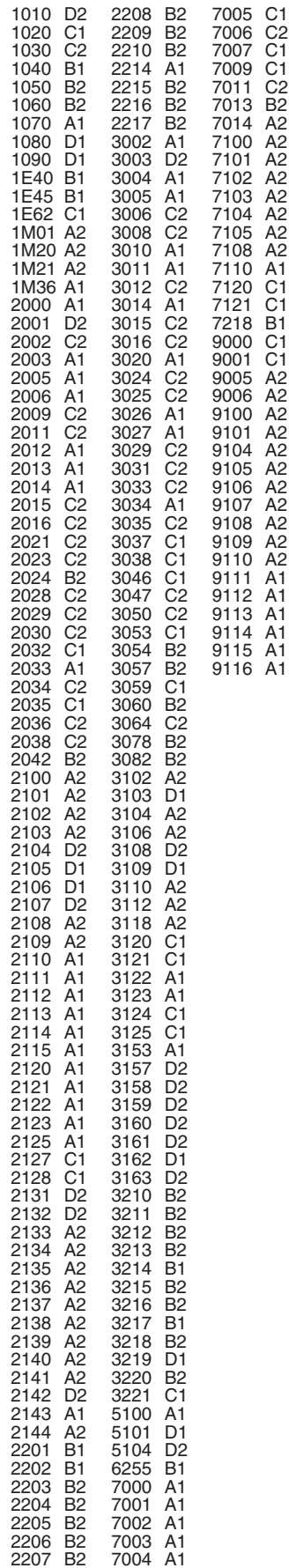
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|            |          |
|------------|----------|
| 1010 H13   | 9110 I4  |
| 1080-1 B14 | 9111 C3  |
| 1080-2 C14 | 9112 C3  |
| 1080-3 A14 | 9113 C3  |
| 1090 D14   | 9114 C3  |
| 1100 H12   | 9115 D3  |
| 1101 H12   | 9116 C3  |
| 1102 I12   | F100 B6  |
| 1103 B13   | F101 B6  |
| 1104 D13   | F102 B6  |
| 1105 B13   | F103 B6  |
| 1106 C13   | F104 B6  |
| 1E40 B6    | F105 B6  |
| 1E45 A7    | F106 B6  |
| 1E62 E6    | F107 B6  |
| 1M01 H7    | F108 B6  |
| 1M20 H6    | F109 B6  |
| 1M21 H7    | F110 C6  |
| 1M36 C2    | F111 B6  |
| 2100 A8    | F112 B6  |
| 2101 B8    | F113 C6  |
| 2102 B8    | F114 C6  |
| 2103 C8    | F115 C6  |
| 2104 B12   | F116 C6  |
| 2105 D11   | F117 C6  |
| 2106 B11   | F118 D6  |
| 2107 C11   | F119 D6  |
| 2108 D8    | F120 E5  |
| 2109 D8    | F121 E5  |
| 2110 D2    | F122 E5  |
| 2111 D2    | F123 F5  |
| 2112 D3    | F124 D6  |
| 2113 D2    | F125 D6  |
| 2114 D2    | F126 D6  |
| 2115 D3    | F127 E6  |
| 2120 I8    | F128 H13 |
| 2121 B9    | F129 C6  |
| 2122 I10   | F130 F5  |
| 2123 I9    | F131 H5  |
| 2124 G9    | F132 H6  |
| 2125 G9    | F133 F6  |
| 2126 G9    | F134 F5  |
| 2127 H9    | F135 H6  |
| 2128 H8    | F136 F5  |
| 2131 G12   | F137 F5  |
| 2132 G12   | F138 F5  |
| 2133 G5    | F139 G5  |
| 2134 H5    | F140 H5  |
| 2135 H5    | F141 F11 |
| 2136 H5    | F142 F12 |
| 2137 H5    | F143 F5  |
| 2138 H5    | F144 H12 |
| 2139 H5    | F145 H12 |
| 2140 H5    | F146 D6  |
| 2141 I5    | F147 B13 |
| 2142 B11   | F148 D13 |
| 2143 A5    | F149 B13 |
| 2144 A4    | F150 C13 |
| 3102 B9    | F151 C6  |
| 3103 D12   | F152 H5  |
| 3104 B9    | F153 H5  |
| 3105 C10   | F154 H5  |
| 3106 C9    | F155 I5  |
| 3107 C10   | F156 F5  |
| 3108 C11   | F157 F5  |
| 3109 B11   | F158 F5  |
| 3110 D9    | F159 G5  |
| 3111 D10   | F160 G5  |
| 3112 D9    | F161 C2  |
| 3113 D10   | F162 C2  |
| 3117 B10   | F163 C2  |
| 3118 A9    | F164 C2  |
| 3119 A10   | F165 C2  |
| 3120 E9    | F166 D2  |
| 3121 E9    | F167 D6  |
| 3122 A4    | F168 D6  |
| 3123 A5    | F169 D6  |
| 3124 F8    | F170 F6  |
| 3125 F8    | F171 C6  |
| 3126 F8    | F172 C6  |
| 3127 H8    | F173 D6  |
| 3128 H8    | F174 G5  |
| 3129 G11   | F175 G5  |
| 3130 G12   | F176 F5  |
| 3131 D10   | F177 F5  |
| 3132 D10   | F178 F5  |
| 3133 D10   | F179 F5  |
| 3134 H8    | F180 G5  |
| 3135 H8    | F181 C2  |
| 3136 B12   | F182 C2  |
| 3137 B12   | F183 C2  |
| 3138 B12   | F184 C2  |
| 3139 B12   | F185 C2  |
| 3140 B12   | F186 C2  |
| 3141 B12   | F187 C2  |
| 3142 B12   | F188 C2  |
| 3143 B12   | F189 C2  |
| 3144 B12   | F190 C2  |
| 3145 B12   | F191 C2  |
| 3146 B12   | F192 C2  |
| 3147 B12   | F193 C2  |
| 3148 B12   | F194 C2  |
| 3149 B12   | F195 C2  |
| 3150 B12   | F196 C2  |
| 3151 B12   | F197 C2  |
| 3152 B12   | F198 C2  |
| 3153 B12   | F199 C2  |
| 3154 B12   | F200 C2  |

Externals: C



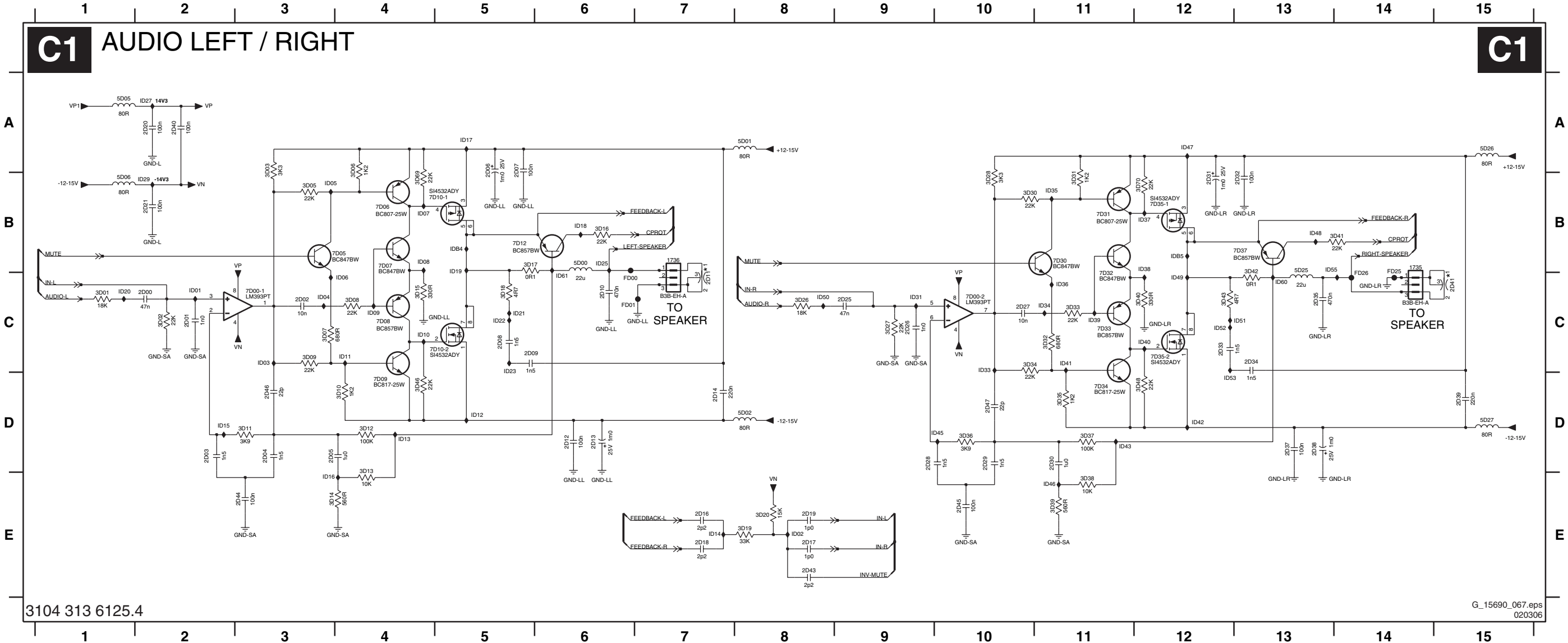
### Layout Externals (Bottom Side)



|      |    |      |    |
|------|----|------|----|
| 2019 | C2 | 6002 | D2 |
| 2025 | A2 | 6003 | D1 |
| 2027 | A2 | 6004 | A2 |
| 2045 | C1 | 6005 | A2 |
| 2124 | A2 | 6006 | C1 |
| 2126 | A2 | 6007 | C1 |
| 2213 | B2 | 6008 | C1 |
| 2218 | B2 | 6009 | C1 |
| 2219 | B2 | 6010 | C2 |
| 2220 | B2 | 6011 | C1 |
| 2221 | B2 | 6012 | C2 |
| 2222 | A2 | 6013 | C1 |
| 2225 | A1 | 6014 | C1 |
| 2230 | A2 | 6015 | C1 |
| 2235 | A1 | 6016 | C2 |
| 2240 | A2 | 6017 | C1 |
| 2245 | A1 | 6018 | A2 |
| 2250 | A2 | 6019 | C2 |
| 2255 | B2 | 6020 | C1 |
| 3000 | D2 | 6021 | C2 |
| 3001 | D1 | 6022 | C1 |
| 3007 | A2 | 6023 | C2 |
| 3009 | C2 | 6024 | C1 |
| 3013 | C1 | 6025 | C2 |
| 3017 | A2 | 6026 | C1 |
| 3022 | C2 | 6031 | C2 |
| 3023 | C1 | 6032 | C1 |
| 3028 | A2 | 6033 | C2 |
| 3030 | C2 | 6034 | B1 |
| 3032 | C1 | 6035 | B1 |
| 3036 | A2 | 6037 | B1 |
| 3039 | A2 | 6038 | B2 |
| 3041 | C1 | 6100 | D1 |
| 3042 | C2 | 6101 | D1 |
| 3044 | C1 | 6102 | C2 |
| 3048 | C1 | 6103 | D1 |
| 3049 | C2 | 6104 | D1 |
| 3052 | C1 | 6105 | D2 |
| 3055 | C2 | 6106 | D2 |
| 3056 | C1 | 6107 | D2 |
| 3058 | C2 | 6108 | D2 |
| 3061 | C1 | 6109 | D2 |
| 3062 | C1 | 6110 | D1 |
| 3063 | B2 | 6225 | B1 |
| 3065 | C1 | 6226 | A1 |
| 3066 | C1 | 6230 | A1 |
| 3067 | C2 | 6231 | A1 |
| 3068 | C1 | 6235 | A1 |
| 3069 | C1 | 6236 | A1 |
| 3070 | C2 | 6240 | A2 |
| 3071 | C1 | 6241 | A2 |
| 3072 | B2 | 6245 | A1 |
| 3074 | B1 | 6246 | A2 |
| 3075 | B2 | 6250 | A2 |
| 3076 | B2 | 6251 | A1 |
| 3079 | B1 | 6256 | B2 |
| 3080 | B2 | 7010 | C1 |
| 3081 | B1 | 7015 | C1 |
| 3085 | B1 | 7106 | D1 |
| 3086 | B1 | 7107 | D1 |
| 3105 | A1 | 7210 | B1 |
| 3107 | A1 | 9102 | D1 |
| 3111 | A1 | 9205 | A2 |
| 3113 | A1 |      |    |
| 3117 | A1 |      |    |
| 3119 | A1 |      |    |
| 3154 | C2 |      |    |
| 3208 | A2 |      |    |
| 3209 | A2 |      |    |
| 3225 | B1 |      |    |
| 3226 | A1 |      |    |
| 3231 | B2 |      |    |
| 3232 | A1 |      |    |
| 3235 | A1 |      |    |
| 3236 | A1 |      |    |
| 3240 | A2 |      |    |
| 3241 | A2 |      |    |
| 3245 | A2 |      |    |
| 3246 | A1 |      |    |
| 3250 | A2 |      |    |
| 3251 | A2 |      |    |
| 3255 | B2 |      |    |
| 3256 | B2 |      |    |
| 3999 | D2 |      |    |
| 6000 | C2 |      |    |
| 6001 | D1 |      |    |

Audio Panel: Left / Right

|          |         |         |         |          |          |          |          |         |         |          |          |          |          |          |            |           |            |            |         |         |         |         |          |          |          |          |          |
|----------|---------|---------|---------|----------|----------|----------|----------|---------|---------|----------|----------|----------|----------|----------|------------|-----------|------------|------------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| 1735 B14 | 2D04 D3 | 2D10 C6 | 2D17 E8 | 2D26 C9  | 2D32 B13 | 2D39 D15 | 2D46 D3  | 3D06 A4 | 3D12 D4 | 3D18 C5  | 3D30 B10 | 3D36 D10 | 3D42 C13 | 5D00 B6  | 5D26 A15   | 7D07 B4   | 7D30 B11   | 7D35-2 C12 | ID01 C2 | ID07 B4 | ID13 D4 | ID19 B5 | ID27 A2  | ID36 C11 | ID42 D12 | ID49 C12 | ID60 C13 |
| 1736 B7  | 2D05 D3 | 2D11 C7 | 2D18 E7 | 2D27 C10 | 2D33 C12 | 2D40 A2  | 2D47 D10 | 3D07 C3 | 3D13 E4 | 3D19 E8  | 3D31 B11 | 3D37 D11 | 3D43 C12 | 5D01 A8  | 5D27 D15   | 7D08 C4   | 7D31 B11   | 7D37 B12   | ID02 E8 | ID08 B4 | ID14 E7 | ID20 C1 | ID29 B2  | ID37 B12 | ID43 D11 | ID50 C8  | ID61 C6  |
| 2D00 C2  | 2D06 A5 | 2D12 D6 | 2D19 E8 | 2D28 D9  | 2D34 C13 | 2D41 C15 | 3D01 C1  | 3D08 C4 | 3D14 E3 | 3D20 E8  | 3D32 C11 | 3D38 E11 | 3D46 D4  | 5D02 D8  | 7D00-1 C3  | 7D09 D4   | 7D32 C11   | FD00 C6    | ID03 C3 | ID09 C4 | ID15 D2 | ID21 C5 | ID31 C9  | ID38 B12 | ID45 D10 | ID51 C13 | IDB4 B5  |
| 2D01 C2  | 2D07 A5 | 2D13 D6 | 2D20 A2 | 2D29 D10 | 2D35 C13 | 2D43 E8  | 3D02 C2  | 3D09 C3 | 3D15 C4 | 3D26 C8  | 3D33 C11 | 3D39 E11 | 3D48 D12 | 5D05 A1  | 7D00-2 C10 | 7D10-1 B4 | 7D33 C11   | FD01 C6    | ID04 C3 | ID10 C4 | ID16 E3 | ID22 C5 | ID33 C10 | ID39 C11 | ID46 E11 | ID52 C12 | IDB5 B12 |
| 2D02 C3  | 2D08 C5 | 2D14 D7 | 2D21 B2 | 2D30 D11 | 2D37 D13 | 2D44 E3  | 3D03 A3  | 3D10 D4 | 3D16 B6 | 3D27 C9  | 3D34 C10 | 3D40 C12 | 3D69 B4  | 5D06 B1  | 7D05 B3    | 7D10-2 C4 | 7D34 D11   | FD25 C14   | ID05 B3 | ID11 C4 | ID17 A5 | ID23 C5 | ID34 C11 | ID40 C12 | ID47 A12 | ID53 D12 |          |
| 2D03 D2  | 2D09 C5 | 2D16 E7 | 2D25 C9 | 2D31 B12 | 2D38 D13 | 2D45 E10 | 3D05 B3  | 3D11 D3 | 3D17 B5 | 3D28 B10 | 3D35 D11 | 3D41 B14 | 3D70 B12 | 5D25 B13 | 7D06 B4    | 7D12 B5   | 7D35-1 B12 | FD26 C14   | ID06 C4 | ID12 D5 | ID18 B6 | ID25 B6 | ID35 B11 | ID41 C11 | ID48 B13 | ID55 B13 |          |



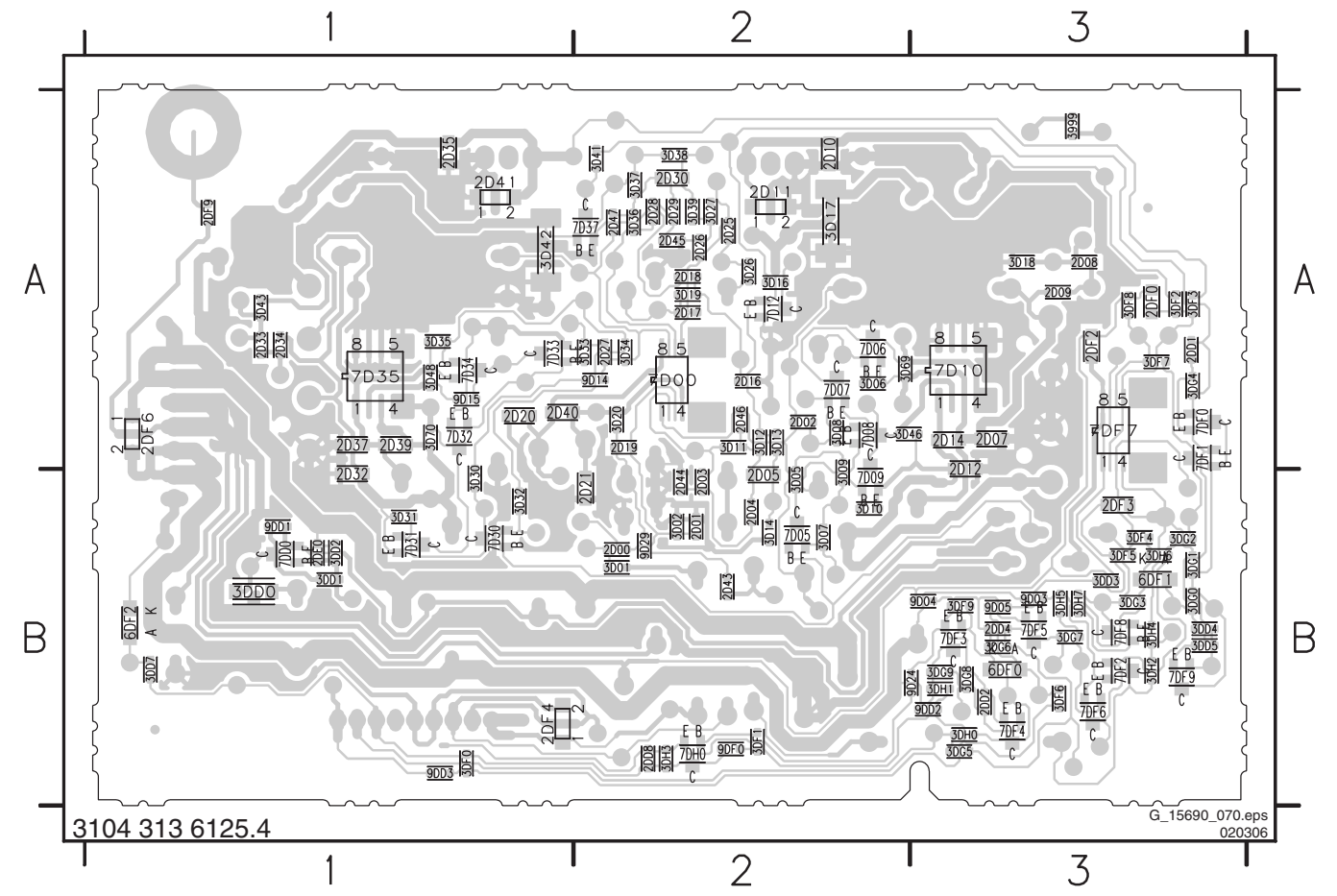


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|-----------|----------|
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| 1M02 C11  | IDE2 D11 |
| 1M52 A11  | IDE3 A5  |
| 2DD1 F3   | IDF1 A3  |
| 2DD2 D6   | IDF2 B4  |
| 2DD4 F6   | IDF3 C3  |
| 2D8D C9   | IDF4 C5  |
| 2DE0 E11  | IDF5 C10 |
| 2DF0 B3   | IDF6 E4  |
| 2DF2 A4   | IDF7 C6  |
| 2DF3 B4   | IDF8 E4  |
| 2DF4 A12  | IDF9 E5  |
| 2DF6 C11  | IDG0 F6  |
| 2DF9 G10  | IDG1 F6  |
| 3999 G10  | IDG3 E3  |
| 3DD0 D10  | IDG4 F3  |
| 3DD1 D10  | IDG5 F2  |
| 3DD2 E10  | IDG6 F2  |
| 3DD3 A4   | IDG7 E3  |
| 3DD4 F2   | IDG8 F1  |
| 3DD5 F2   | IDG9 E5  |
| 3DD7 C10  | c001 E10 |
| 3DF0 C6   | c002 F10 |
| 3DF1 C6   | c003 E10 |
| 3DF2 B2   | c004 F10 |
| 3DF3 C2   | c005 F10 |
| 3DF4 A3   |          |
| 3DF5 B3   |          |
| 3DF6 A4   |          |
| 3DF7 C3   |          |
| 3DF8 C3   |          |
| 3DF9 C5   |          |
| 3DG0 E2   |          |
| 3DG1 F2   |          |
| 3DG2 E3   |          |
| 3DG3 E5   |          |
| 3DG4 F3   |          |
| 3DG5 F5   |          |
| 3DG6 F6   |          |
| 3DG7 F6   |          |
| 3DG8 D6   |          |
| 3DG9 C6   |          |
| 3DH0 C5   |          |
| 3DH1 C5   |          |
| 3DH2 E4   |          |
| 3DH3 C7   |          |
| 3DH4 D4   |          |
| 3DH5 E6   |          |
| 3DH6 E3   |          |
| 3DH7 E4   |          |
| 6DF0 B5   |          |
| 6DF1 F1   |          |
| 6DF2 C10  |          |
| 7DD0 D11  |          |
| 7DF0 F3   |          |
| 7DF1 F3   |          |
| 7DF2 E4   |          |
| 7DF3 C5   |          |
| 7DF4 D5   |          |
| 7DF5 F6   |          |
| 7DF6 E5   |          |
| 7DF7-1 A4 |          |
| 7DF7-2 C4 |          |
| 7DF8 D4   |          |
| 7DF9 F2   |          |
| 7DH0 C6   |          |
| 9DD1 D11  |          |
| 9DD2 B10  |          |
| 9DD3 B11  |          |
| 9DF0 C6   |          |
| FDG1 B11  |          |
| FDG2 C3   |          |
| FDG8 G10  |          |
| FDG9 G11  |          |
| FDH0 C11  |          |
| FDH1 C11  |          |
| FDH2 C11  |          |
| FDH3 C11  |          |
| FDH4 A11  |          |
| FDH5 A11  |          |
| FDH6 A11  |          |
| FDH8 B11  |          |
| FDH9 B11  |          |
| IDE0 D10  |          |

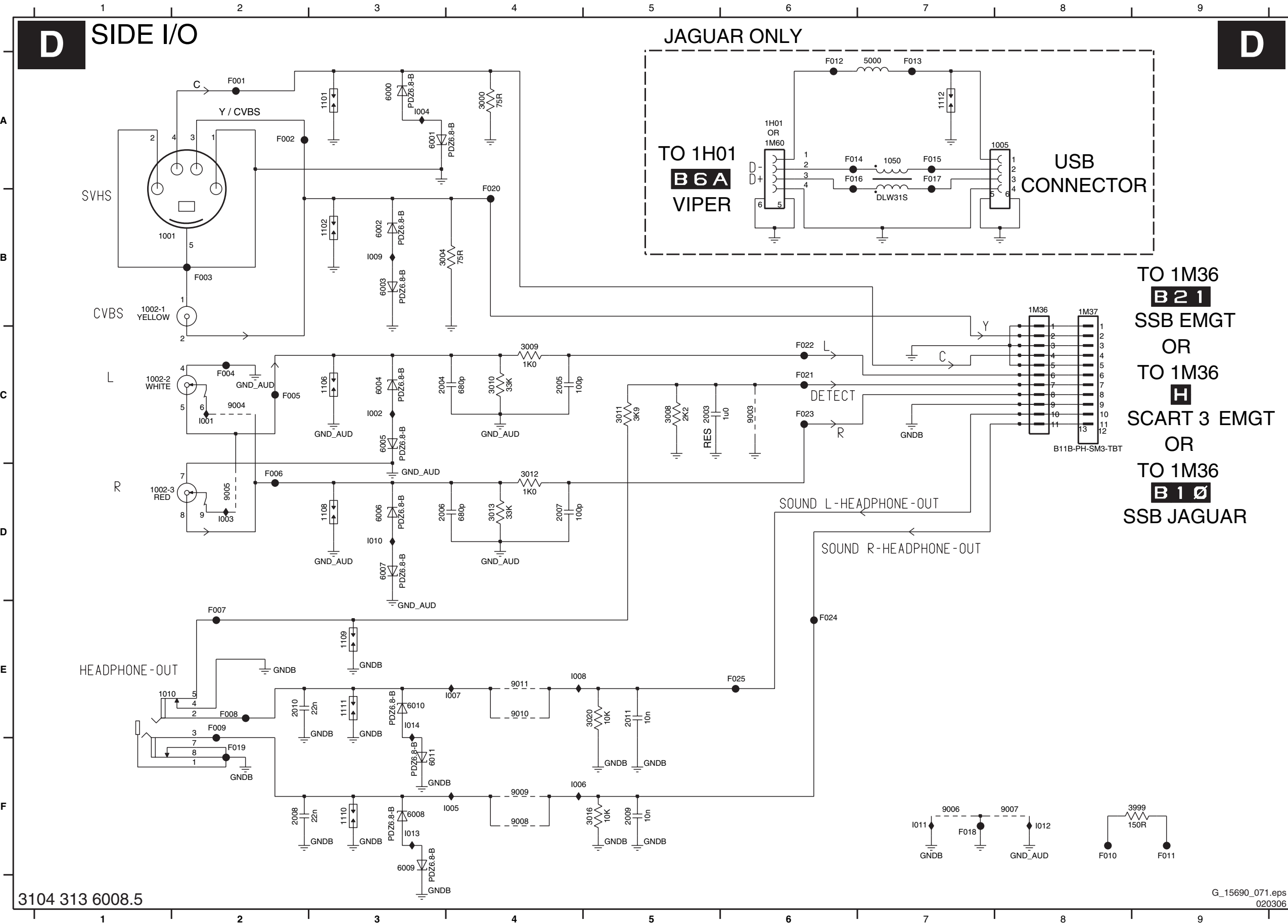


### Layout Audio Panel (Bottom Side)

|         |         |         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2D00 B2 | 2D17 A2 | 2D35 A1 | 2DE0 B1 | 3D09 B2 | 3D31 B1 | 3D69 A2 | 3DF5 B3 | 3DG9 B3 | 7D06 A2 | 7DF0 A3 | 9D14 A2 |
| 2D01 B2 | 2D18 A2 | 2D37 A1 | 2DF0 A3 | 3D10 B2 | 3D32 B1 | 3D70 A1 | 3DF6 B3 | 3DH0 B3 | 7D07 A2 | 7DF1 A3 | 9D15 A1 |
| 2D02 A2 | 2D19 A2 | 2D39 A1 | 2DF2 A3 | 3D11 A2 | 3D33 A2 | 3DD0 B1 | 3DF7 A3 | 3DH1 B3 | 7D08 A2 | 7DF2 B3 | 9D24 B3 |
| 2D03 B2 | 2D20 A1 | 2D40 A1 | 2DF3 B3 | 3D12 A2 | 3D34 A2 | 3DD1 B1 | 3DF8 A3 | 3DH2 B3 | 7D09 B2 | 7DF3 B3 | 9D29 B2 |
| 2D04 B2 | 2D21 B2 | 2D41 A1 | 2DF4 B1 | 3D13 A2 | 3D35 A1 | 3DD2 B1 | 3DF9 B3 | 3DH3 B2 | 7D10 A3 | 7DF4 B3 | 9DD1 B1 |
| 2D05 B2 | 2D25 A2 | 2D43 B2 | 2DF6 A1 | 3D14 B2 | 3D36 A2 | 3DD3 B3 | 3DG0 B3 | 3DH4 B3 | 7D12 A2 | 7DF5 B3 | 9DD2 B3 |
| 2D07 A3 | 2D26 A2 | 2D44 B2 | 2DF9 A1 | 3D16 A2 | 3D37 A2 | 3DD4 B3 | 3DG1 B3 | 3DH5 B3 | 7D30 B1 | 7DF6 B3 | 9DD3 B1 |
| 2D08 A3 | 2D27 A2 | 2D45 A2 | 3999 A3 | 3D17 A2 | 3D38 A2 | 3DD5 B3 | 3DG2 B3 | 3DH6 B3 | 7D31 B1 | 7DF7 A3 | 9DF0 B2 |
| 2D09 A3 | 2D28 A2 | 2D46 A2 | 3D01 B2 | 3D18 A3 | 3D39 A2 | 3DD7 B1 | 3DG3 B3 | 3DH7 B3 | 7D32 A1 | 7DF8 B3 |         |
| 2D10 A2 | 2D29 A2 | 2D47 A2 | 3D02 B2 | 3D19 A2 | 3D41 A2 | 3DF0 B1 | 3DG4 A3 | 6DF0 B3 | 7D33 A1 | 7DF9 B3 |         |
| 2D11 A2 | 2D30 A2 | 2DD1 A3 | 3D05 B2 | 3D20 A2 | 3D42 A1 | 3DF1 B2 | 3DG5 B3 | 6DF1 B3 | 7D34 A1 | 7DH0 B2 |         |
| 2D12 A3 | 2D32 B1 | 2DD2 B3 | 3D06 A2 | 3D26 A2 | 3D43 A1 | 3DF2 A3 | 3DG6 B3 | 6DF2 B1 | 7D35 A1 | 9D03 B3 |         |
| 2D14 A3 | 2D33 A1 | 2DD4 B3 | 3D07 B2 | 3D27 A2 | 3D46 A2 | 3DF3 A3 | 3DG7 B3 | 7D00 A2 | 7D37 A2 | 9D04 B3 |         |
| 2D16 A2 | 2D34 A1 | 2DD8 B2 | 3D08 A2 | 3D30 B1 | 3D48 A1 | 3DF4 B3 | 3DG8 B3 | 7D05 B2 | 7DD0 B1 | 9D05 B3 |         |



Side I/O Panel



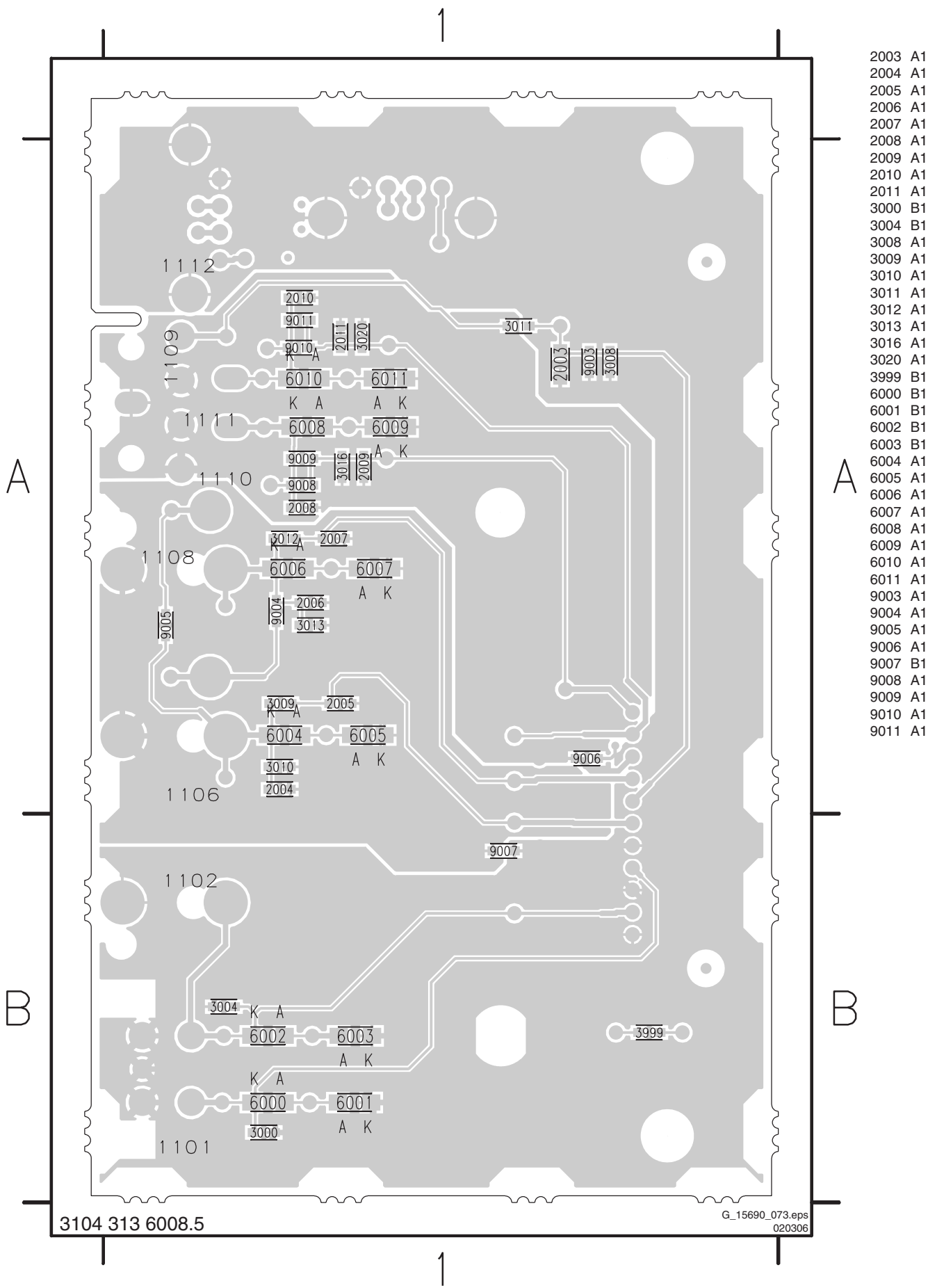
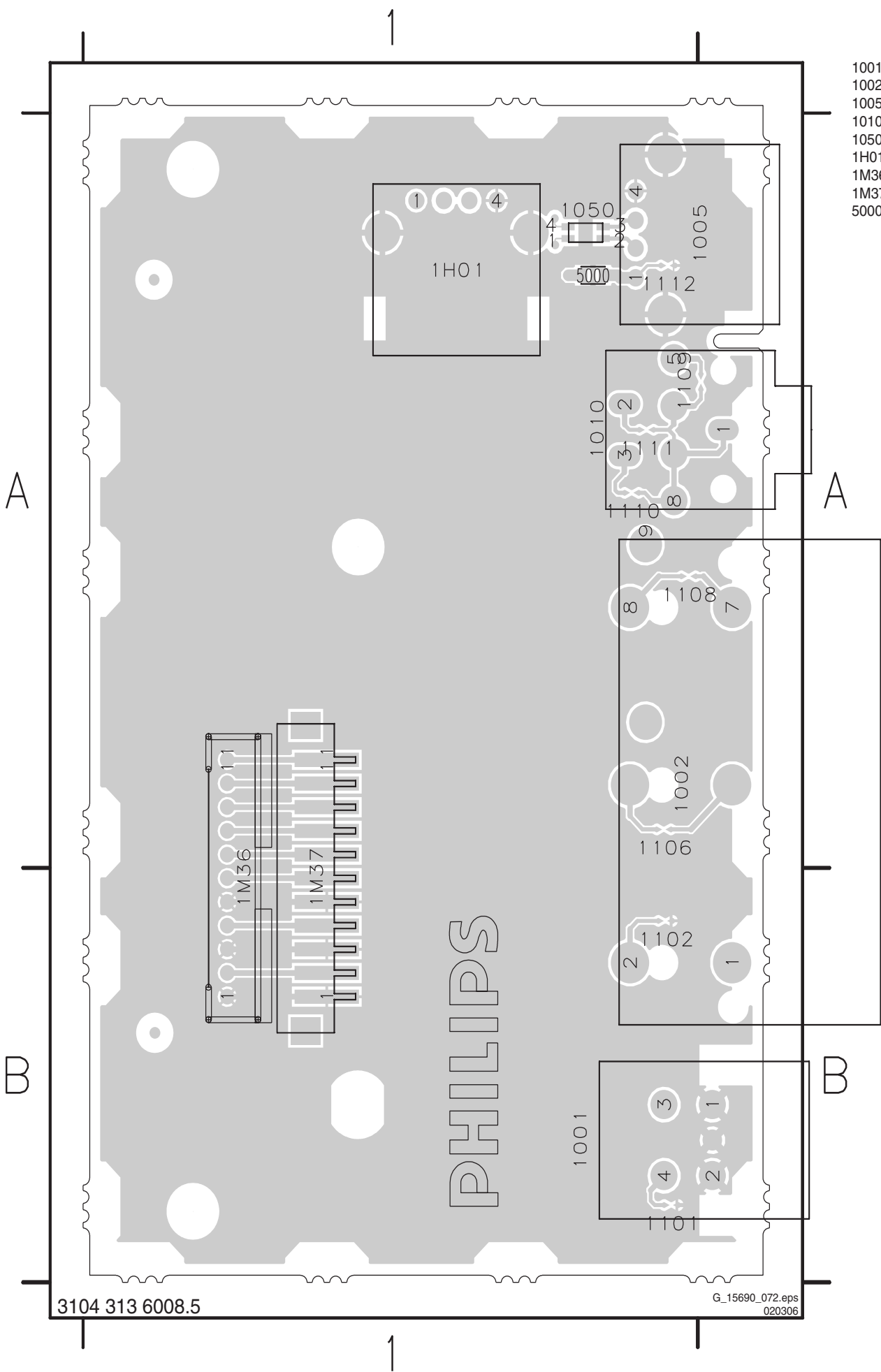
|           |         |
|-----------|---------|
| 1001 B2   | F002 A2 |
| 1002-1 B1 | F003 B2 |
| 1002-2 C1 | F004 C2 |
| 1002-3 D1 | F005 C2 |
| 1005 A8   | F006 D2 |
| 1010 E1   | F007 E2 |
| 1050 A7   | F008 E2 |
| 1101 A3   | F009 E2 |
| 1102 B3   | F010 F8 |
| 1106 C3   | F011 F9 |
| 1108 D3   | F012 A6 |
| 1109 E3   | F013 A7 |
| 1110 F3   | F014 A6 |
| 1111 E3   | F015 A7 |
| 1112 A7   | F016 A6 |
| 1H01 A6   | F017 A7 |
| 1M36 B8   | F018 F7 |
| 1M37 B8   | F019 F2 |
| 2003 C5   | F020 B4 |
| 2004 C3   | F021 C6 |
| 2005 C4   | F022 C6 |
| 2006 D3   | F023 C6 |
| 2007 D4   | F024 E6 |
| 2008 F2   | F025 E6 |
| 2009 F5   | I001 C2 |
| 2010 E2   | I002 C3 |
| 2011 E5   | I003 D2 |
| 3000 A4   | I004 A3 |
| 3004 B3   | I005 F4 |
| 3008 C5   | I006 F4 |
| 3009 C4   | I007 E4 |
| 3010 C4   | I008 E4 |
| 3011 C5   | I009 B3 |
| 3012 D4   | I010 D3 |
| 3013 D4   | I011 F7 |
| 3016 F5   | I012 F8 |
| 3020 E5   | I013 F3 |
| 3999 F9   | I014 E3 |
| 5000 A7   |         |
| 6000 A3   |         |
| 6001 A3   |         |
| 6002 B3   |         |
| 6003 B3   |         |
| 6004 C3   |         |
| 6005 C3   |         |
| 6006 D3   |         |
| 6007 D3   |         |
| 6008 F3   |         |
| 6009 F3   |         |
| 6010 E3   |         |
| 6011 F3   |         |
| 9003 C6   |         |
| 9004 C2   |         |
| 9005 D2   |         |
| 9006 F7   |         |
| 9007 F8   |         |
| 9008 F4   |         |
| 9009 F4   |         |
| 9010 E4   |         |
| 9011 E4   |         |
| F001 A2   |         |

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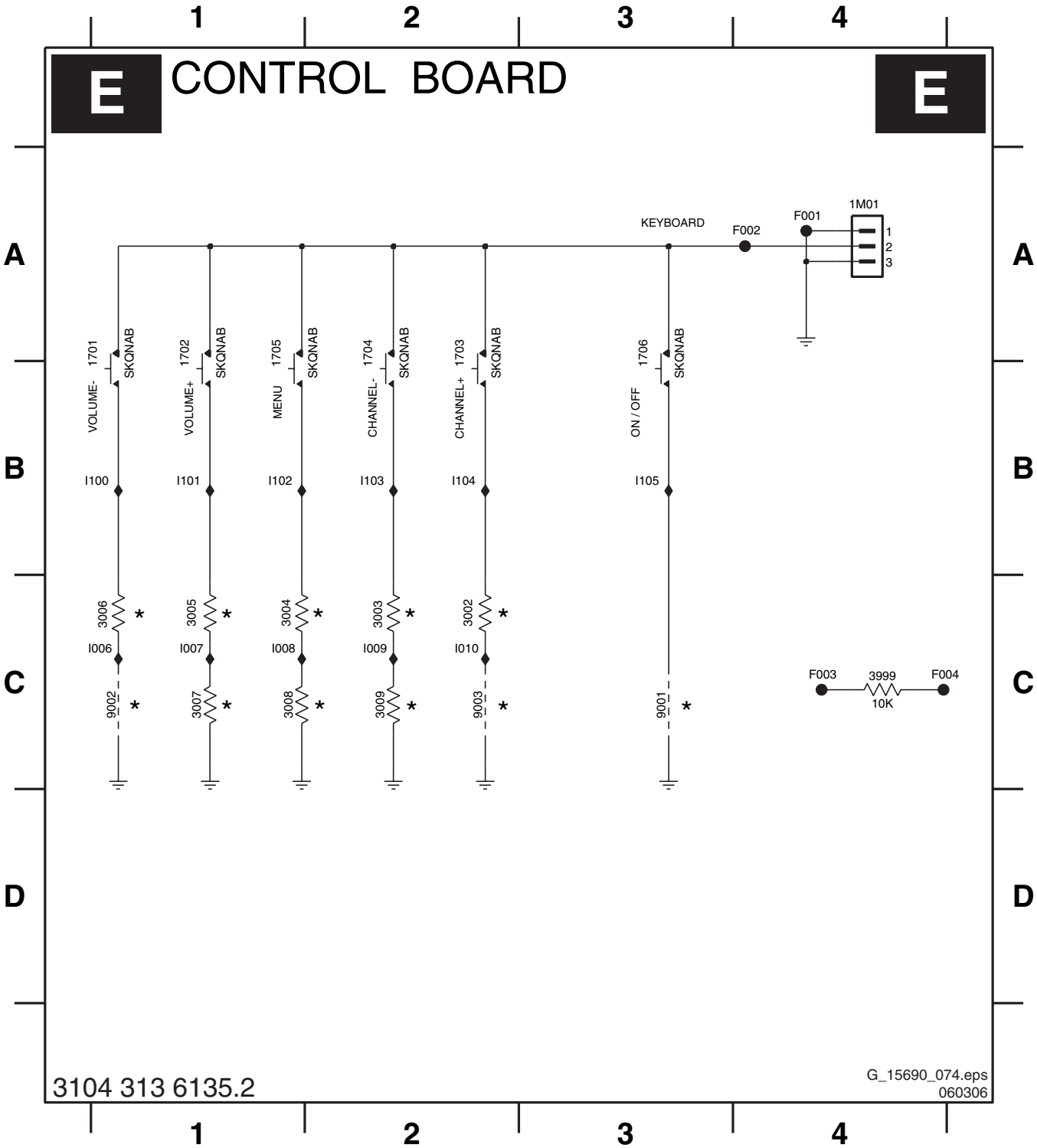
Layout Side I/O Panel (Top Side)

Layout Side I/O Panel (Bottom Side)

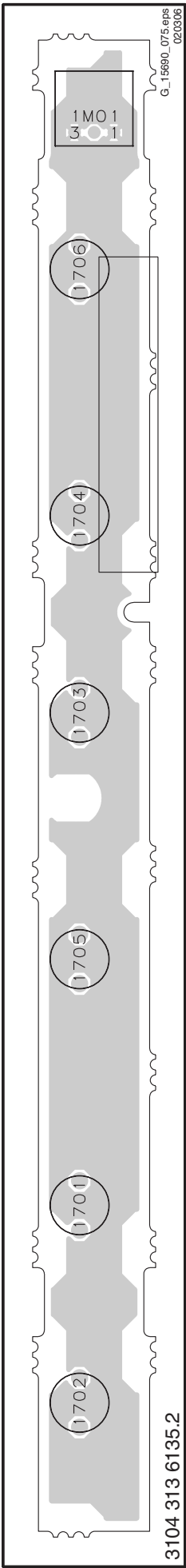


Control Board

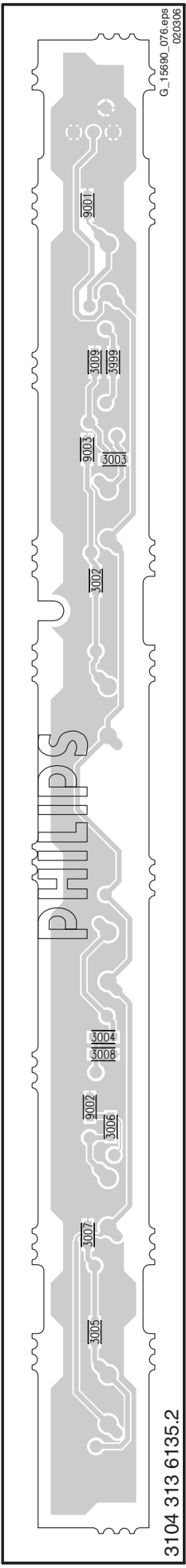
|         |         |         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1701 A1 | 1704 A2 | 1M01 A4 | 3004 C1 | 3007 C1 | 3999 C4 | 9003 C2 | F003 C4 | I007 C1 | I010 C2 | I102 B1 | I105 B3 |
| 1702 A1 | 1705 A1 | 3002 C2 | 3005 C1 | 3008 C1 | 9001 C3 | F001 A4 | F004 C4 | I008 C1 | I100 B1 | I103 B2 |         |
| 1703 A2 | 1706 A3 | 3003 C2 | 3006 C1 | 3009 C2 | 9002 C1 | F002 A4 | I006 C1 | I009 C2 | I101 B1 | I104 B2 |         |



Layout Control Board (Top Side)



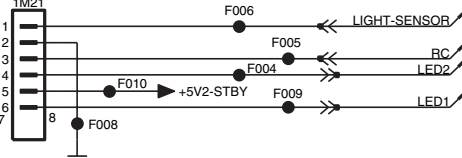
Layout Control Board (Bot Side)



LED Panel

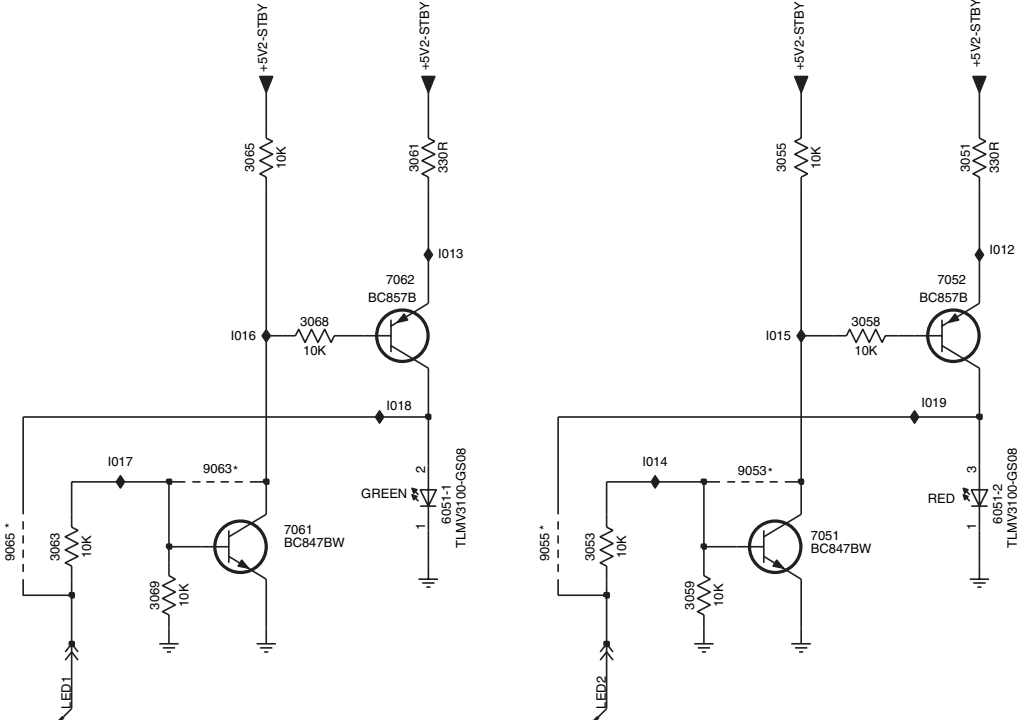
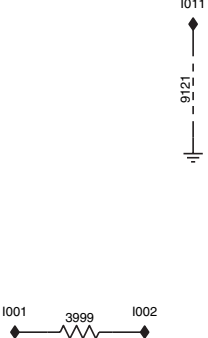
LED PANEL

TO  
SSB



"GREEN"

"RED"



"IR RECEIVER"

"LIGHT SENSOR"

- 1040 G2
- 1M20 B1
- 2040 G3
- 2070 G4
- 3040 F3
- 3041 G3
- 3042 F3
- 3051 C7
- 3053 D6
- 3055 C7
- 3058 C7
- 3059 E6
- 3061 C5
- 3063 D3
- 3065 C4
- 3068 C5
- 3069 E4
- 3071 G4
- 3072 G5
- 3074 G7
- 3077 G5
- 3078 G7
- 3079 G6
- 3999 D2
- 6051-1 D5
- 6051-2 D8
- 7051 D7
- 7052 C7
- 7061 D4
- 7062 C5
- 7070 G6
- 7071 G5
- 9053 D7
- 9055 D6
- 9063 D4
- 9065 D3
- 9120 C1
- 9121 C2
- F004 B2
- F005 B2
- F006 B2
- F008 B1
- F009 B2
- F010 B2
- I001 D2
- I002 D2
- I010 C1
- I011 C2
- I012 C8
- I013 C5
- I014 D6
- I015 C7
- I016 C4
- I017 D4
- I018 D5
- I019 D7
- I020 G7
- I021 G6
- I022 F3
- I023 G5





[illegible]

## 8. Alignments

### Index of this chapter:

- 8.1 General Alignment Conditions
- 8.2 Hardware Alignments
- 8.3 Software Alignments
- 8.4 Option Settings

**Note:** The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the CURSOR UP, DOWN, LEFT or RIGHT keys of the remote control transmitter.

### 8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:

- Power supply voltage (depends on region):
    - AP-NTSC: 120 V<sub>AC</sub> or 230 V<sub>AC</sub> / 50 Hz (± 10%).
    - AP-PAL-multi: 120 - 230 V<sub>AC</sub> / 50 Hz (± 10%).
    - EU: 230 V<sub>AC</sub> / 50 Hz (± 10%).
    - LATAM-NTSC: 120 - 230 V<sub>AC</sub> / 50 Hz (± 10%).
    - US: 120 V<sub>AC</sub> / 60 Hz (± 10%).
  - Connect the set to the mains via an isolation transformer with low internal resistance.
  - Allow the set to warm up for approximately 15 minutes.
  - Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
- Caution:** It is not allowed to use heatsinks as ground.
- Test probe: R<sub>i</sub> > 10 Mohm, C<sub>i</sub> < 20 pF.
  - Use an isolated trimmer/screwdriver to perform alignments.

#### 8.1.1 Initial Settings

Press the "Menu" button on the RC. Select "TV settings" and then "Picture". Change the following initial setting in order to perform all electrical adjustments:

1. Set "Active Control" to "Off".
2. Set "Light sensor" to "Off".

#### 8.1.2 Alignment Sequence

- First, set the correct options:
  - In SAM, select "Options", and then "Option numbers".
  - Fill in the option settings for "Group 1" and "Group 2" according to the set sticker (see also paragraph "Option Settings").
  - Store the OPTIONS by pressing OK on the remote control **before** the cursor is moved to the left.
  - Press STORE on the RC.
  - Switch the set to STAND-BY.
- Warming up (>15 minutes).
- White-D alignment.

### 8.2 Hardware Alignments

Not applicable.

### 8.3 Software Alignments

Put the set in SAM mode (see Chapter 5 "Service Modes, Error Codes and Fault Finding"). The SAM menu will now appear on the screen. Select ALIGNMENTS and go to one of the sub menus. The alignments are explained below.

#### Notes:

- All changes must be stored manually.

- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values.

With the software alignments of the Service Alignment Mode (SAM), "Tuner AGC", "Tuner IF PLL Offset" and the "Whitepoint" settings can be aligned.

To store the data: Use the RC button OK before the cursor is moved to the left, press STORE on the RC, press MENU to switch to the main menu and then switch to STAND-BY mode.

For the next alignments, supply the following test signals via a video generator to the RF input:

- **EU/AP-PAL** models: a PAL B/G TV-signal with a signal strength of at least 1 mV and a frequency of 475.25 MHz
- **US/AP-NTSC** models: an NTSC M/N TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).
- **LATAM** models: an NTSC M TV-signal with a signal strength of at least 1 mV and a frequency of 61.25 MHz (channel 3).

#### 8.3.1 Tuner AGC

Purpose: To keep the tuner output signal constant as the input signal amplitude varies.

For this chassis, no alignment is necessary, as the AGC alignment is done automatically (standard value: "32").

#### 8.3.2 IF PLL Offset

The IF PLL Offset value needs to be realigned in case the MPIF and/or the NVM have been replaced. This value needs NOT be realigned in case only the tuner has been replaced.

Default values are:

- For PAL B/G: 40
- For SECAM L: 32

In case the result is not satisfying (distortion in sound and/or discolouration in left and right part of the picture), use the following method to align the IF PLL Offset value:

- Switch set "off".
- Disconnect speakers and connect resistor of 1kΩ instead.
- Connect AC voltmeter over resistor.
- Switch set "on".
- Put "Volume" at maximum.
- Align PLL until voltage is at minimum.

In case the minimum value on the AC voltmeter is found in a range of IF PLL Offset values, the value should be taken that is in the middle of this range.

#### 8.3.3 White Point

- Set "Active control" to "Off" as earlier described.
- Choose "TV menu", "TV Settings" and then "Picture" and put:
  - "Dynamic contrast" to "Off".
  - "Colour enhancement" to "Off".
  - "Light sensor" to "Off".
  - "Clear LCD" to "On" where applicable.
  - "Colour" to "0".
  - "Contrast" to "100".
- Go to the SAM and select "Alignments"-> "Whitepoint".

#### White point alignment:

- Use a 100% white screen as input signal and set the following values:

- “Colour temperature”: “Normal”.
- All “Whitepoint” values to: “127”.
- “Red BL offset” and “Green BL offset” values to “8”.

In case you have a colour analyzer:

- Measure with a calibrated (phosphor- independent) colour analyzer in the centre of the screen. Consequently, the measurement needs to be done in a dark environment.
- Adjust the correct x,y coordinates (while holding one of the White point registers R, G or B on 127) by means of decreasing the value of one or two other white points to the correct x,y coordinates (see table “White D alignment values”). Tolerance: dx:  $\pm 0.004$ , dy:  $\pm 0.004$ .
- Repeat this step for the other Color Temperatures that need to be aligned.
- When finished press OK on the RC and then press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

If you do not have a colour analyzer, you can use the default values. This is the next best solution. The default values are average values coming from production (statistics).

- Select a COLOUR TEMPERATURE (e.g. COOL, NORMAL, or WARM).
- Set the RED, GREEN and BLUE default values according to the values in the “Tint settings” table.
- When finished press OK on the RC, then press STORE (in the SAM root menu) to store the aligned values to the NVM.
- Restore the initial picture settings after the alignments.

**Table 8-1 Tint settings 42” version**

| Colour Temp. | R   | G  | B   |
|--------------|-----|----|-----|
| Cool         | 127 | 99 | 111 |
| Normal       | 127 | 93 | 95  |
| Warm         | 127 | 74 | 56  |

**Table 8-2 Tint settings 50” version**

| Colour Temp. | R   | G   | B   |
|--------------|-----|-----|-----|
| Cool         | 127 | 116 | 124 |
| Normal       | 127 | 108 | 107 |
| Warm         | 127 | 95  | 72  |

**Note:** *These values were not available at the time of writing, therefore they come from an early production sample (for indication only). As soon as the production data become available, a Service Info or Service Manual update will be issued via the appropriate channels.*

## 8.4 Option Settings

### 8.4.1 Introduction

The microprocessor communicates with a large number of I<sup>2</sup>C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

#### Notes:

- After changing the option(s), save them by pressing the OK button on the RC **before** the cursor is moved to the left and then press the STORE command.
- The new option setting is only active after the TV is switched “off” and “on” again with the Mains switch (the EAROM is then read again).

### 8.4.2 Dealer Options

For dealer options, in SAM select “Dealer options” and then “Personal options”.

**Table 8-3 Dealer options**

| Menu item        | Subjects               | Options     | Description                                                                                                                       |
|------------------|------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Personal Options | Virgin Mode            | On          | TV starts up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode)         |
|                  |                        | Off         | TV does not start up (once) with a language selection menu after the Mains switch is turned "on" for the first time (virgin mode) |
|                  | Autostore Mode         | None        | Determines where the set directs the information from for the autostore functionality                                             |
|                  |                        | PDC/VPS     |                                                                                                                                   |
|                  |                        | TXT page    |                                                                                                                                   |
|                  |                        | PDC/VPS/TXT |                                                                                                                                   |
|                  | PDP Contrast Reduction | On          | Avoids PDP damage by reducing contrast in case of a still picture or in case of no user interaction during teletext reception     |
|                  |                        | Off         |                                                                                                                                   |

### 8.4.3 (Service) Options

Select the sub menu's to set the initialization codes (options) of the set via text menus.

**Table 8-4 Service options**

| Menu-item        | Subjects           | Options                              | Description                                                                            |
|------------------|--------------------|--------------------------------------|----------------------------------------------------------------------------------------|
| PIP/DS           | Dual Screen        | None                                 | no DS                                                                                  |
| Data             | EPG                | -                                    | Electronic Program Guide                                                               |
| Display          | Screen             | “Value”                              | Used screen size, type, and resolution                                                 |
|                  | Clear LCD          | On / Off                             | Feature present / not present                                                          |
|                  | Dimming Backlight  | On / Off                             | Feature present / not present                                                          |
| Video Repro      | Picture Processing | No Spider / Spider                   | Feature present                                                                        |
|                  | Combfilter         | None / 2D / 3D                       | Only selectable when Columbus is present                                               |
|                  | Ambient Light      | None / Mono / Stereo / Triple / Quad | Inverter not present / one inverter / two inverters / three inverters / four inverters |
|                  | Pacific 3          | On                                   | Feature present                                                                        |
|                  | MOP                | Off                                  | Feature present / not present (for sets with AmbiLight this is “on”)                   |
|                  | Light sensor       | Off / On                             | Sensor active / not active                                                             |
| Source Selection | EXT1 type          | CVBS RGB                             |                                                                                        |
|                  | EXT2 type          | CVBS Y/C RGB P50                     |                                                                                        |
|                  | EXT3 type          | YPbPr LR HV                          |                                                                                        |
|                  | EXT4 type          | None                                 |                                                                                        |
|                  | HDMI 1             | None                                 | No HDMI                                                                                |
|                  |                    | With analog audio                    | DVI                                                                                    |
|                  |                    | Without analog audio                 | HDMI                                                                                   |
|                  | HDMI 2             | None                                 | No HDMI                                                                                |
|                  |                    | With analog audio                    | DVI                                                                                    |
|                  |                    | Without analog audio                 | HDMI                                                                                   |
|                  | USB version        | 2.0 + CR                             | USB 2.0 in cardreader panel                                                            |
|                  | Ethernet           | Off                                  | Connector not present                                                                  |
|                  | VGA                | Off                                  |                                                                                        |
|                  | S/PDIF inputs      | 1 connector                          | 1 connector present (in)                                                               |



| Menu-item     | Subjects                                                                        | Options                      | Description                               |
|---------------|---------------------------------------------------------------------------------|------------------------------|-------------------------------------------|
| Audio Repro   | Acoustic System<br>(Cabinet design, used for setting dynamic audio parameters). | None                         |                                           |
|               |                                                                                 | Entry ME5 5W                 |                                           |
|               |                                                                                 | Entry ME5 15W                |                                           |
|               |                                                                                 | (Soft) Wrap                  |                                           |
|               |                                                                                 | Top                          |                                           |
|               |                                                                                 | Entry+                       |                                           |
|               |                                                                                 | Eco ME5 5W                   |                                           |
|               |                                                                                 | Eco ME5 15W                  |                                           |
|               |                                                                                 | Eco ME6                      |                                           |
|               |                                                                                 | Top-A 2K6                    |                                           |
|               |                                                                                 | ME5P 2K6                     |                                           |
|               |                                                                                 | Step Top-B EUR AP 2K6 32     |                                           |
|               |                                                                                 | Step Top-B EUR AP 2K6 37+    |                                           |
|               |                                                                                 | Step Top-B Open 2K6          |                                           |
|               |                                                                                 | MEG 2K6                      |                                           |
|               |                                                                                 | 51 WMAG                      |                                           |
|               |                                                                                 | 51 PHIL                      |                                           |
|               |                                                                                 | 60 PHIL                      |                                           |
|               |                                                                                 | MEG ECO Slim                 |                                           |
|               | Centre mode support                                                             | Off                          | Feature present / not present             |
|               | Inverted Class D amplifier                                                      | Yes / No                     | Amplifier present / not present           |
| Miscellaneous | Region                                                                          | Europe / AP-PAL-MULTI        |                                           |
|               | ATSC / DVB-T                                                                    | On / Off                     |                                           |
|               | DVB-T installation                                                              | Off / Country dependent / On |                                           |
|               | Alternative tuner                                                               | Philips                      | Tuner brand                               |
|               | Tuner type                                                                      | UV1318 / TD 1318             | Tuner type                                |
|               | AGC amplifier                                                                   | Other / Sanyo                |                                           |
|               | Hotel mode                                                                      | Off                          |                                           |
|               | Video playback                                                                  | On                           |                                           |
|               | Connected planet                                                                | Off                          |                                           |
| Opt. no.      | Group 1                                                                         |                              | xxxxx xxxxx xxxxx xxxxx (see set sticker) |
|               | Group 2                                                                         |                              | xxxxx xxxxx xxxxx xxxxx (see set sticker) |
|               | Store                                                                           | Store                        |                                           |

#### 8.4.4 Opt. No. (Option numbers)

Select this sub menu to set all options at once (expressed in two long strings of numbers).

An option number (or "option byte") represents a number of different options. When you change these numbers directly, you can set all options very quickly. All options are controlled via eight option numbers.

When the EAROM is replaced, all options will require resetting. To be certain that the factory settings are reproduced exactly, you must set both option number lines. You can find the correct option numbers on a sticker inside the TV set.

**Example:** The options sticker gives the following option numbers:

- 04368 00005 01066 08707
- 00000 00032 00512 00000

The first line (group 1) indicates hardware options 1 to 4, the second line (group 2) indicates software options 5 to 8. Every 5-digit number represents 16 bits (so the maximum value will be 65536 if all options are set).

When all the correct options are set, the sum of the decimal values of each Option Byte (OB) will give the option number. See next table for the option overview.

**Important:** after having edited the option numbers as described above, you **must** press OK on the remote control **before** the cursor is moved to the left!

Table 8-5 Option code overview

| Byte | Bit (dec. value) | Subject             | Options             | Settings (in decimal values)                                                                                                                                                                                                                                                                                | Remarks                                                    |
|------|------------------|---------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1    | 0 (1)            | Video Repro         | Picture Processing  | 0= No Spider, 1= Spider                                                                                                                                                                                                                                                                                     | Spider availability, influences, digital options.          |
|      | 1 (2)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 2 (4)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 3 (8)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 4 (16)           |                     | Comb Filter         | 0= None, 8= 2D Comb (Columbus without DRAM), 16= 3D Comb (Columbus with DRAM)                                                                                                                                                                                                                               |                                                            |
|      | 5 (32)           |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 6 (64)           |                     | Ambient Light       | 0= None, 32=Ambi-light Mono, 64= Ambi-light Stereo, 96 = Ambi-light Triple, 128 = Ambi-light Quattro                                                                                                                                                                                                        |                                                            |
|      | 7 (128)          |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 8 (256)          |                     | Dual Screen         | 0= None, 256= One Tuner DS, 512= Two Tuner DS                                                                                                                                                                                                                                                               |                                                            |
|      | 9 (512)          |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 10 (1024)        |                     | MOP                 | 0= Off, 1024= On                                                                                                                                                                                                                                                                                            | Matrix Output Processor.                                   |
|      | 11 (2048)        |                     | JOP                 | 0= Off, 2048= On                                                                                                                                                                                                                                                                                            | Jaguar Output Processor.                                   |
|      | 12 (4096)        |                     | POD                 | 0= Off, 4096= On                                                                                                                                                                                                                                                                                            |                                                            |
|      | 13 (8192)        | n.a.                |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 14 (16384)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 15 (32768)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
| 2    | 0 (1)            | Cabinet Type        | Cabinet Type        | 0= None, 1= Entry_ ME5_5W, 2= Entry_ME5_15W, 3= (Soft)Wrap, 4= Top, 5= Entry+, 6= ME5_5W Eco, 7= ME5 15W Eco, 8= ME6 Eco, 9= TopA 2K6, 10= ME5P 2K6, 11= TopBStep32Box 2K6, 12= TopBStep37PlusBox 2K6, 13= TopBStepOpen 2K6, 14= ME6 2K6, 15= 51WMAG, 16= 51PHIL, 17= 60PHIL, 18 = MEG ECO Slim, 19= Others | Cabinet design, used for setting dynamic audio parameters. |
|      | 1 (2)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 2 (4)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 3 (8)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 4 (16)           |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 5 (32)           | n.a.                |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 6 (64)           |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 7 (128)          |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 8 (256)          | Sound Repro         | Inverted Class D    | 0= Not Inverted, 256= Inverted                                                                                                                                                                                                                                                                              |                                                            |
|      | 9 (512)          |                     | Subwoofer Internal  | 0= Off, 512= On                                                                                                                                                                                                                                                                                             |                                                            |
|      | 10 (1024)        | Centre Mode Support | Centre Mode Support | 0= Not Supported, 1024= Supported                                                                                                                                                                                                                                                                           |                                                            |
|      | 11 (2048)        | n.a.                |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 12 (4096)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 13 (8192)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 14 (16384)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 15 (32768)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
| 3    | 0 (1)            | Source Select       | HDMI1               | 0= None (no HDMI), 1= With analog audio (DVI), 2= Without analog audio (HDMI)                                                                                                                                                                                                                               | read-only                                                  |
|      | 1 (2)            |                     | HDMI2               | 0= None(no HDMI), 4= With analog audio (DVI), 8= Without analog audio (HDMI)                                                                                                                                                                                                                                | read-only                                                  |
|      | 2 (4)            |                     | Video Playback      | 0= Off, 16= On                                                                                                                                                                                                                                                                                              |                                                            |
|      | 3 (8)            |                     | USB Version         | 0= None, 32= USB 1.1, 64= USB 2.0 + Card reader                                                                                                                                                                                                                                                             | USB support.                                               |
|      | 4 (16)           |                     | IEEE1394            | 0= Not Present, 128= Present                                                                                                                                                                                                                                                                                |                                                            |
|      | 5 (32)           |                     | Ethernet            | 0= LAN not present, 256= LAN present                                                                                                                                                                                                                                                                        |                                                            |
|      | 6 (64)           |                     | RRT                 | 0= Off, 512= On                                                                                                                                                                                                                                                                                             | Regional Rating Table (RRT)                                |
|      | 7 (128)          |                     | S/PDIF Inputs       | 0= None, 1024= 1 Connector, 2048= 2 Connectors                                                                                                                                                                                                                                                              |                                                            |
|      | 8 (256)          |                     | VGA                 | 0= Off, 1= On                                                                                                                                                                                                                                                                                               |                                                            |
|      | 9 (512)          |                     | n.a.                |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 10 (1024)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 11 (2048)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 12 (4096)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 13 (8192)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 14 (16384)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 15 (32768)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
| 4    | 0 (1)            | Region              | Region              | 0= EU, 1= AP-P, 2= AP-N, 3= US, 4= Latam                                                                                                                                                                                                                                                                    |                                                            |
|      | 1 (2)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 2 (4)            |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 3 (8)            | Interconnect        | China IF            | 0= Off, 8= On                                                                                                                                                                                                                                                                                               |                                                            |
|      | 4 (16)           |                     | Alternative Tuner   | 0= Philips, 16= Alps                                                                                                                                                                                                                                                                                        | Tuner make.                                                |
|      | 5 (32)           |                     | Tuner Type          | 0= TD1336s (B-Chassis US), 32= TD1331(J-Chassis US), 64= UV1318 (Analogue EU), 96= TD1316 (Hybrid EU)                                                                                                                                                                                                       | Tuner type (B-chassis US is e.g "BP2.3U").                 |
|      | 6 (64)           |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 7 (128)          | Amplifier Type      | Amplifier Type      | 0= NEC, 128= Sanyo                                                                                                                                                                                                                                                                                          |                                                            |
|      | 8 (256)          | Source select       | AV1                 | 0= CVBS/RGB, 256= CVBS/YC/YpPr/HV/LR, 512= CVBS/YC/LR, 768= CVBS/YpPr/LR                                                                                                                                                                                                                                    | Input type.                                                |
|      | 9 (512)          |                     | AV2                 | 0= CVBS/YC/RGB/P50, 1024= CVBS/YC/LR, 2048= CVBS/YpPr/LR, 3072= CVBS/YC/YpPr/LR                                                                                                                                                                                                                             | Input type.                                                |
|      | 10 (1024)        |                     | n.a.                |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 11 (2048)        |                     | n.a.                |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 12 (4096)        |                     | AV4                 | 0= Not Available, 16384= YPbPr, 32768= YPbPr/LR                                                                                                                                                                                                                                                             | Input type.                                                |
|      | 13 (8192)        |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 14 (16384)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |
|      | 15 (32768)       |                     |                     |                                                                                                                                                                                                                                                                                                             |                                                            |

| Byte | Bit (dec. value) | Subject                | Options            | Settings (in decimal values)                                                | Remarks                                       |
|------|------------------|------------------------|--------------------|-----------------------------------------------------------------------------|-----------------------------------------------|
| 5    | 0 (1)            | Display                | Screen             | see Table "Display code overview" in Chapter "Service Modes" for the values | Screen size, type, and resolution.            |
|      | 1 (2)            |                        |                    |                                                                             |                                               |
|      | 2 (4)            |                        |                    |                                                                             |                                               |
|      | 3 (8)            |                        |                    |                                                                             |                                               |
|      | 4 (16)           |                        |                    |                                                                             |                                               |
|      | 5 (32)           |                        |                    |                                                                             |                                               |
|      | 6 (64)           |                        |                    |                                                                             |                                               |
|      | 7 (128)          |                        |                    |                                                                             |                                               |
|      | 8 (256)          |                        | Light sensor       | 0= Off, 256= On                                                             |                                               |
|      | 9 (512)          |                        | Contrast Reduction | 0= Off, 512= On                                                             |                                               |
|      | 10 (1024)        |                        | Dimming Backlight  | 0= Off, 1024= On                                                            |                                               |
|      | 11 (2048)        |                        | Clear LCD          | 0= Off, 2048= On                                                            |                                               |
|      | 12 (4096)        | AV3Union               | Europe & AP        | 0= CVBS, 4096= YPbPr, 8192= YPbPr/LR, 12288= YPbPr/LR/HV                    |                                               |
|      | 13 (8192)        |                        |                    |                                                                             |                                               |
|      | 14 (16384)       |                        | US                 | 0= YPbPr, 16384= CVBS/YC/LR                                                 |                                               |
|      | 15 (32768)       | Logo                   | Logo               | 0= Off, 32768= On (default)                                                 |                                               |
| 6    | 0 (1)            | Miscellaneous          | n.a.               |                                                                             |                                               |
|      | 1 (2)            |                        | n.a.               |                                                                             |                                               |
|      | 2 (4)            |                        | n.a.               |                                                                             |                                               |
|      | 3 (8)            |                        | n.a.               |                                                                             |                                               |
|      | 4 (16)           |                        | n.a.               |                                                                             |                                               |
|      | 5 (32)           |                        | n.a.               |                                                                             |                                               |
|      | 6 (64)           |                        | Proximity Sensor   | 0= Off, 64= On                                                              |                                               |
|      | 7 (128)          |                        | n.a.               |                                                                             |                                               |
|      | 8 (256)          |                        | DVB-T installation | 0= Off, 256= Country dependent, 512= On                                     |                                               |
|      | 9 (512)          |                        |                    |                                                                             |                                               |
|      | 10 (1024)        |                        | n.a.               |                                                                             |                                               |
|      | 11 (2048)        |                        | n.a.               |                                                                             |                                               |
|      | 12 (4096)        |                        | n.a.               |                                                                             |                                               |
|      | 13 (8192)        |                        | n.a.               |                                                                             |                                               |
|      | 14 (16384)       |                        | n.a.               |                                                                             |                                               |
|      | 15 (32768)       |                        | n.a.               |                                                                             |                                               |
| 7    | 0 (1)            | Personal               | Self Learning TV   | 0= Off, 1= On                                                               |                                               |
|      | 1 (2)            |                        | Auto Store Mode    | 0= None, 2= PDC/VPS, 4= TXT Page, 6= PDC/VPS/TXT Page                       | Fixed to: "None" in the AP-N and US versions. |
|      | 2 (4)            |                        |                    |                                                                             |                                               |
|      | 3 (8)            |                        | 2CS Korea          | 0= Off, 8= On, 16= Auto                                                     |                                               |
|      | 4 (16)           |                        |                    |                                                                             |                                               |
|      | 5 (32)           |                        | Picture Mute       | 0= Off, 32= On                                                              |                                               |
|      | 6 (64)           |                        | n.a.               |                                                                             |                                               |
|      | 7 (128)          |                        | Virgin Mode        | 0= Off, 128= On                                                             |                                               |
|      | 8 (256)          | Hotel Mode             |                    | 0= Off, 256= On                                                             |                                               |
|      | 9 (512)          | Content Browser        |                    | 0= Not Present, 512= Present                                                |                                               |
|      | 10 (1024)        | Connected Planet       |                    | 0= Off, 1024= Full Connected Planet + logo support                          |                                               |
|      | 11 (2048)        |                        |                    |                                                                             |                                               |
|      | 12 (4096)        | ATSC/DVB-T             |                    | 0= Off, 4096= On                                                            |                                               |
|      | 13 (8192)        | IR Blaster             |                    | 0= Off, 8192= On                                                            |                                               |
|      | 14 (16384)       | EPG                    |                    | 0= Off, 16384= On                                                           |                                               |
|      | 15 (32768)       | TV Guide USA (Gemstar) |                    | 0= Off, 32768= On                                                           |                                               |
| 8    | 0 (1)            | n.a.                   | n.a.               |                                                                             |                                               |
|      | 1 (2)            | n.a.                   | n.a.               |                                                                             |                                               |
|      | 2 (4)            | n.a.                   | n.a.               |                                                                             |                                               |
|      | 3 (8)            | n.a.                   | n.a.               |                                                                             |                                               |
|      | 4 (16)           | n.a.                   | n.a.               |                                                                             |                                               |
|      | 5 (32)           | n.a.                   | n.a.               |                                                                             |                                               |
|      | 6 (64)           | n.a.                   | n.a.               |                                                                             |                                               |
|      | 7 (128)          | n.a.                   | n.a.               |                                                                             |                                               |
|      | 8 (256)          | n.a.                   | n.a.               |                                                                             |                                               |
|      | 9 (512)          | n.a.                   | n.a.               |                                                                             |                                               |
|      | 10 (1024)        | n.a.                   | n.a.               |                                                                             |                                               |
|      | 11 (2048)        | n.a.                   | n.a.               |                                                                             |                                               |
|      | 12 (4096)        | n.a.                   | n.a.               |                                                                             |                                               |
|      | 13 (8192)        | n.a.                   | n.a.               |                                                                             |                                               |
|      | 14 (16384)       | n.a.                   | n.a.               |                                                                             |                                               |
|      | 15 (32768)       | n.a.                   | n.a.               |                                                                             |                                               |

## 9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

### Index of this chapter:

- 9.1 Introduction
- 9.2 Power Supply
- 9.3 Front-End
- 9.4 Common Interface (CI)
- 9.5 MPIF (PNX 3000)
- 9.6 PNX2015
- 9.7 VIPER 2 (PNX 8550)
- 9.8 PACIFIC 3
- 9.9 Ambient Light
- 9.10 Abbreviation List
- 9.11 IC Data Sheets

### Notes:

- Only **new** circuits (circuits that are not published recently) are described.
- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the wiring, block (chapter 6) and circuit diagrams (chapter 7). Where necessary, you will find a separate drawing for clarification.

### 9.1 Introduction

The BJ3.0E is a new TV chassis, specifically developed for DVB-T reception. The key components are:

- Common Interface (CI) circuitry.
- MPIF (PNX3000).
- AVIP/COLUMBUS (PNX2015).
- VIPER 2 (PNX8550).

#### 9.1.1 Features

The main features for this chassis are:

- The move from the analog world to the digital world. W.o.w. from signal processing via "hardware circuits" to signal processing via "software algorithms". This means: no software = no picture and sound!
- Fit for both analog and digital signal processing, this by converting analog signals into digital transport streams and allowing seamless zapping between all possible signal sources. This makes the chassis applicable for e.g. receiving DVB-T signals in an integrated product form.
- AmbiLight: To be able to control lamps at the rear of the TV with respect to the measured ambient light level from the light sensor or the picture content, a control output from AutoTV has been foreseen.
- The internal digital processing allows new "Multi-Media" applications such as Content Browser, Memory Card Slot, Local Area Network support (future) and all kinds of streaming applications (future).
- The chassis can be upgraded in the future with internal functionality such as Personal Video Recording, DVD/RW.

A new IC, called Pacific 3, provides Pixel Plus in all models. This ensures additional sharpening, and contrast and colour enhancements to the picture.

#### 9.1.2 Chassis Block Diagram

Description below refers to the block diagrams in chapter 6 "Block Diagrams, Test Point Overview, and Waveforms".

#### *Analog Reception*

The TV receives multimedia information by tuning to one of many 6 MHz input channels available via a cable connection. When the input channel is an analog channel, the signal is processed via the PAL/SECAM decoder and the VBI data decoder.

#### *Digital Reception*

The CI module consists of the following functional blocks: Conditional Access (Module (CAM), Out of Band part, and buffering. These blocks are interfacing with the DVB-T In Band (IB) channel decoder and Out of Band (OOB) channel decoder. The interface is connected to the VIPER. Also the Common Interface outgoing Transport Stream (TS) is routed to the VIPER.

The TV receives multimedia information by tuning to one of many 6 MHz input channels available via a cable connection. When the input channel is a digital channel, it is processed via the QAM demodulator and then passed to the Common Interface device (CI) where secure and scrambled information is processed. Non-scrambled information is passed through the CAM to the MPEG-2 Transport Demultiplexer. When the CAM is not inserted, the output of the QAM demodulator is routed directly to the MPEG-2 Transport Demultiplexer. The multi-media processor (VIPER) handles the synchronization and display of audio-visual material.

The OpenCable Host Device also receives control information and other data by tuning to an Out-Of-Band (OOB) Forward Data Channel (FDC) channel. The terminal will remain tuned to the OOB Forward Data Channel (own tuner) to continuously receive information. This information is passed to the CAM for processing, and relevant information is passed back to the TV.

#### *Signal Processing*

The AVIP together with the MPIF device is used to perform the input decoding of a single stream of analog audio and video broadcast signals. In addition, the AVIP is used for decoding and presentation of audio output streams. The main data connection between MPIF and AVIP is done via an I<sup>2</sup>D bus. The AVIP converts the incoming video data to ITU-656 format for communication to the VIPER IC.

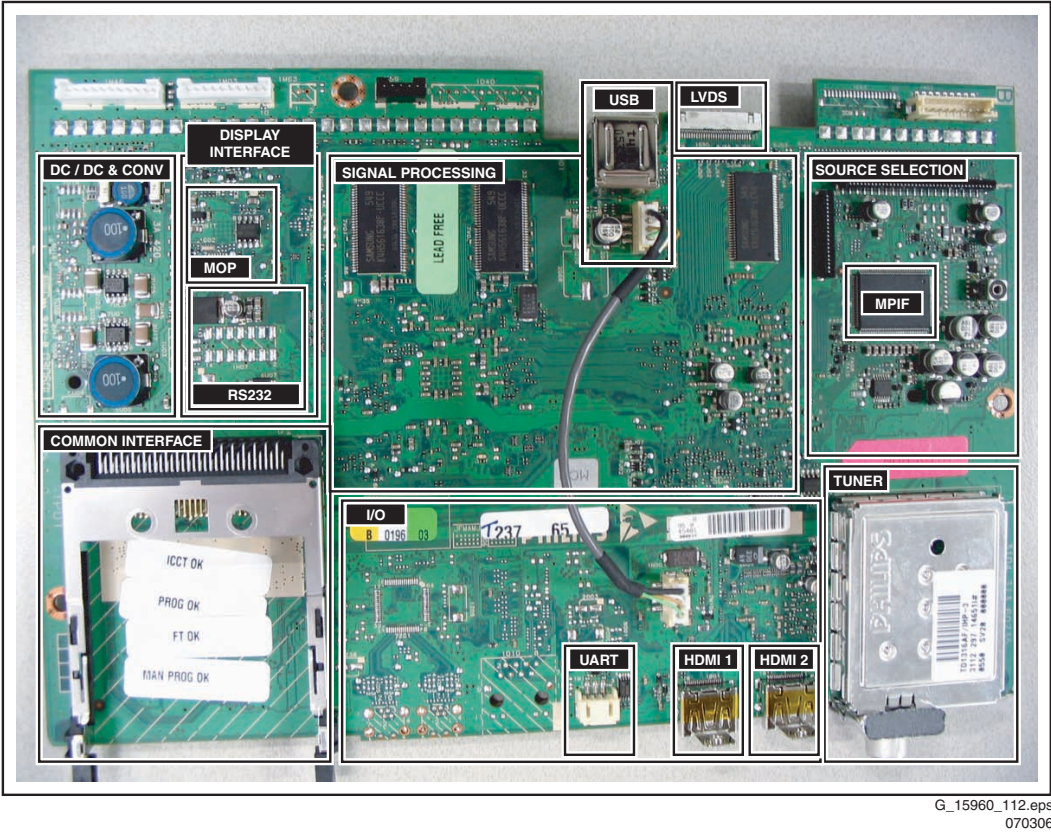
The audio data is transferred between the AVIP and VIPER using I<sup>2</sup>S.

The AVIP IC is controlled by the VIPER via the I<sup>2</sup>C bus.

The key part in the system, the VIPER, performs almost all key features, like video quality enhancement, motion compensation, picture-in-picture processing, and others. It is a completely digital IC with a TriMedia DSP (Digital Signal Processor) core and a MIPS microcontroller core. The DSP and some additional cores are used to do the video feature processing and some auxiliary sound feature processing. The MIPS microcontroller core is used for all internal and external controlling tasks including a system wide I<sup>2</sup>C bus.

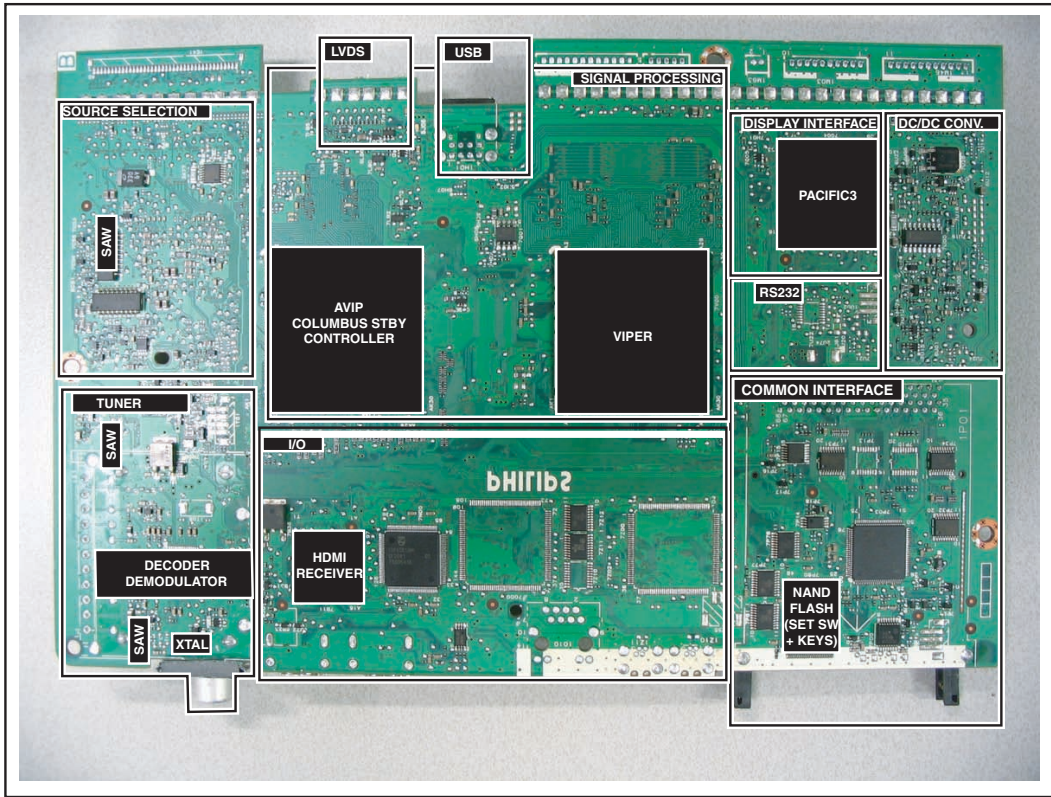
The VIPER provides a primary digital (YUV or RGB) output to the Pacific 3, which on his turn processes the data to the LVDS transmitter. For models with the AmbiLight feature, an EPLD is connected between VIPER output and LVDS Transmitter input. This EPLD (or MOP) is used for the AmbiLight processing and some picture enhancements.

SSB Cell Layout



G\_15960\_112.eps  
070306

Figure 9-1 SSB top view



G\_15960\_113.eps  
070306

Figure 9-2 SSB bottom view



## 9.2 Power Supply

### 9.2.1 Introduction

The 42" version is equipped with a FHP PDP whereas the 50" version is equipped with a SDI PDP.

The SDI PDP (50" version) comes with a buy-in supply unit, which makes it a "black-box" for Service. When defective, a new panel must be ordered and after receipt, the defective panel must be sent for repair.

This Power Supply delivers the following supply voltages to the chassis:

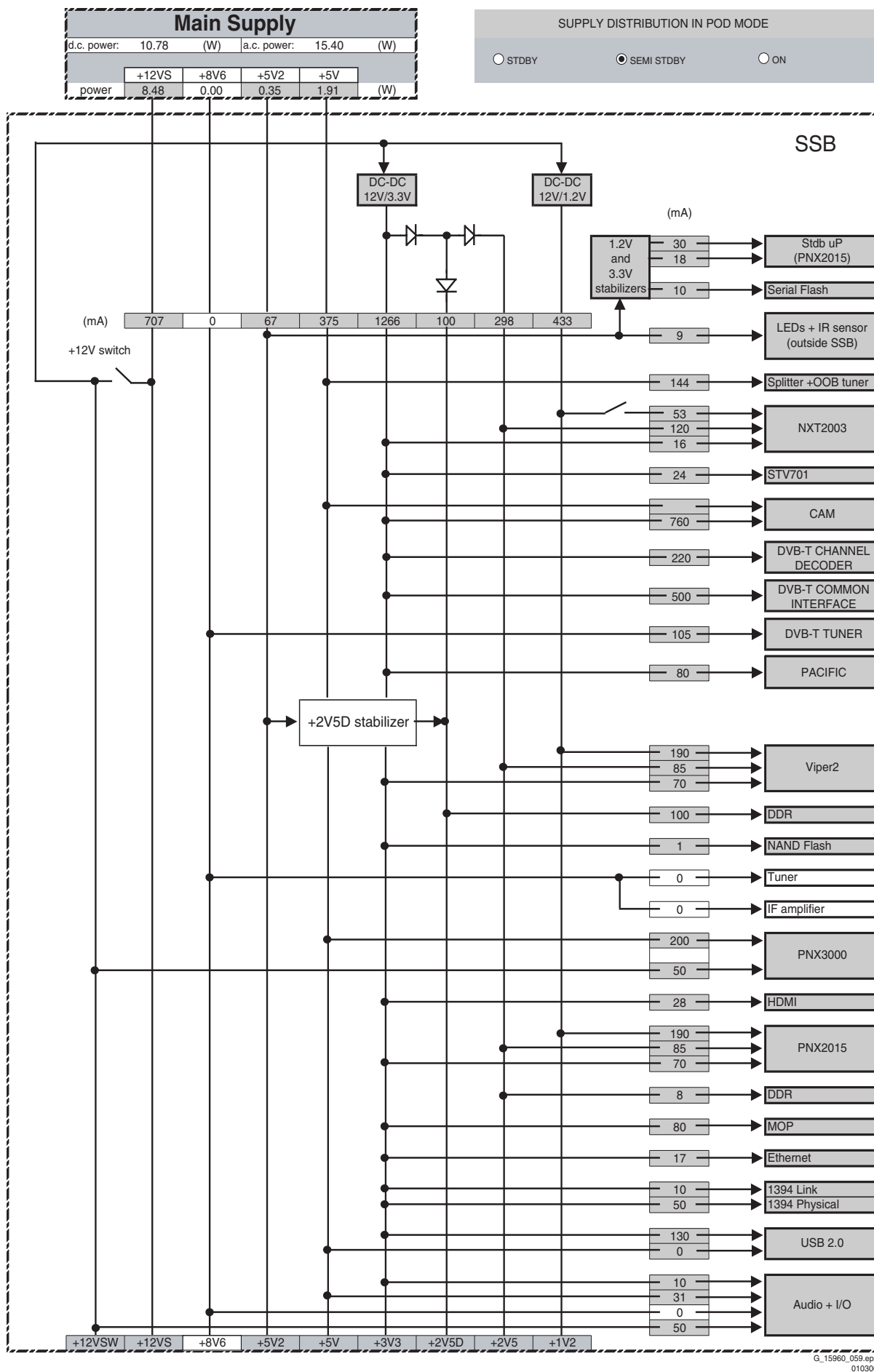
- +12V
- +8V6
- +5V2
- +5V.

The FHP PDP (42" version) comes with a Philips serviceable supply unit. This Power Supply Unit delivers the same voltages to the chassis as the SDI Supply Unit. In addition, this unit delivers +75 to +90 V (adjusted per display) and +50 to +65 V (adjusted per display). For a (more) detailed description see the FTP2.2 E manual.

Main difference with previous sets is that parts from the FHP Supply Unit (42" version) are transferred to a new panel, the Platform Supply Panel. In the 50" version with SDI panel, this Platform Supply Panel is not present.

For a (more) detailed description of the on-board DC/DC converters see the BP2.xU manual.





**Figure 9-4 Supply distribution: SEMI-STDBY Mode (mentioned values are indicative)**

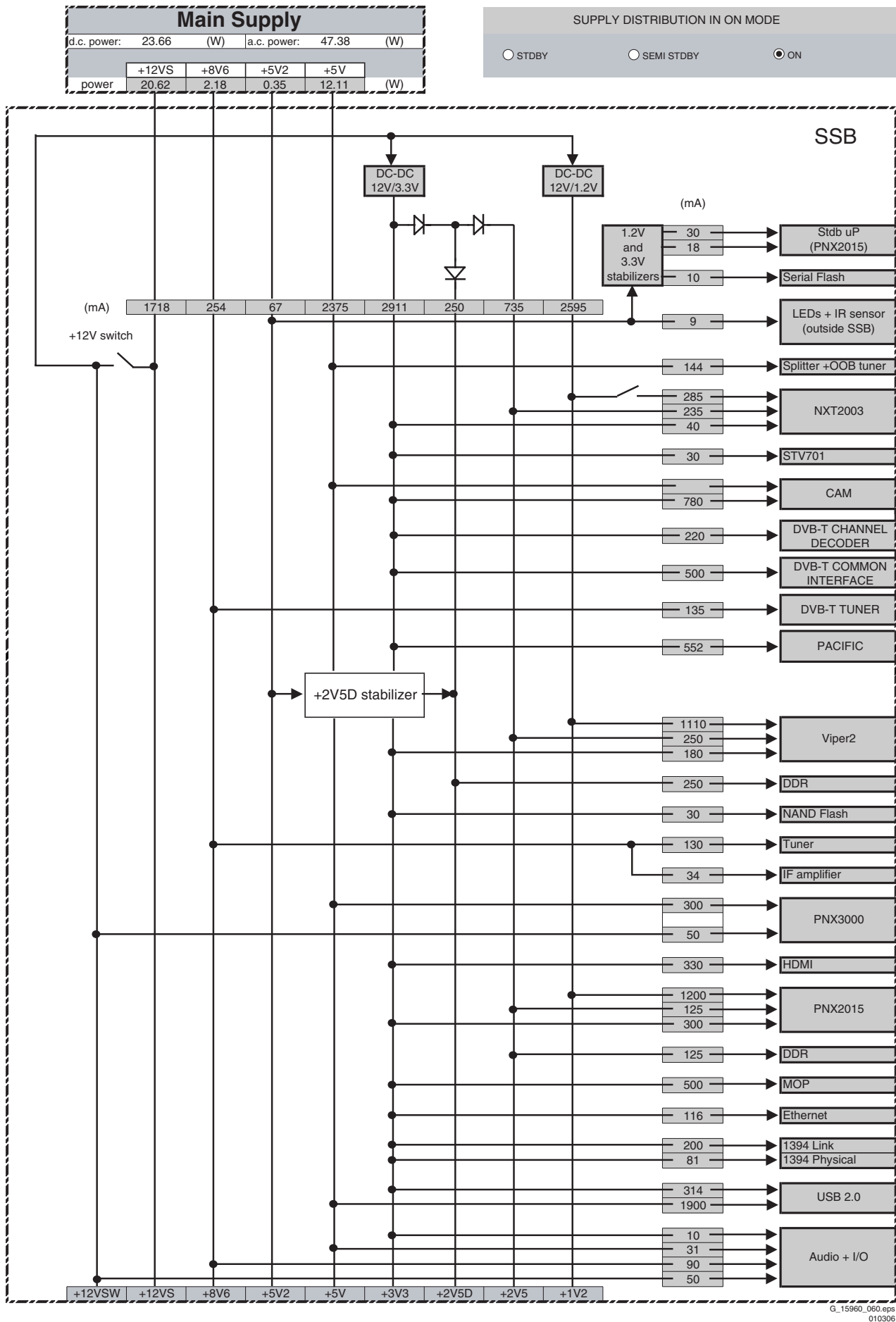


Figure 9-5 Supply distribution: ON Mode (mentioned values are indicative)

### 9.3 Front-End

Main goal of the front-end module is to connect the host (core with source processing) with the outside world via an RF connector.

For a DVB-T application the connection to the outside world is through DVB broadcasts via terrestrial connection. It delivers a number of digital broadcasts services, grouped into a frequency spectrum. The front-end module processes one channel and forwards the digital channel to the core as MPEG data packets at the demodulator's output. To maintain common naming with an ATSC application this path is also referred to as the 'in-band' signal path.

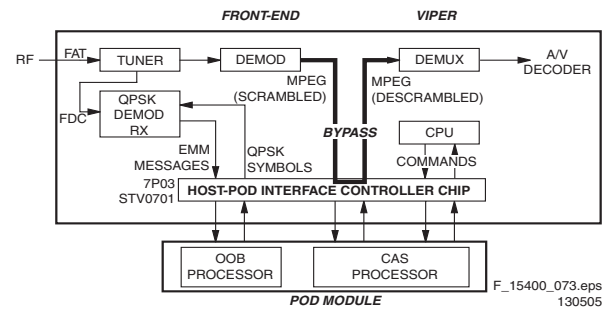


Figure 9-7 In Band channel reception (without CAM inserted)

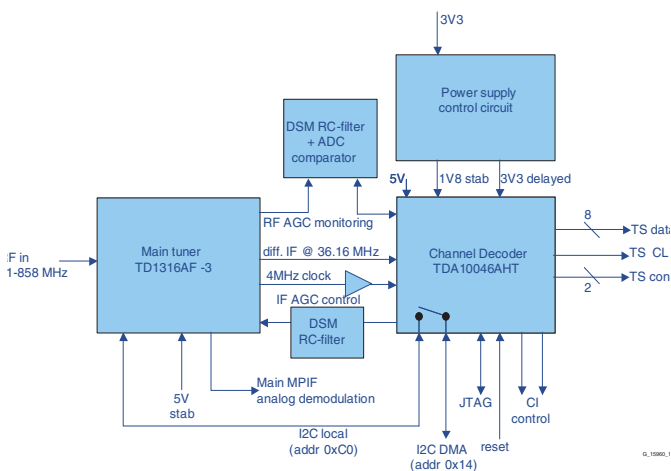


Figure 9-6 Block diagram DVB-T front-end

### 9.4 Common Interface (CI)

#### 9.4.1 Introduction

This chassis is provided with a special slot (Common Interface - CI). Together with a Conditional Access Module (CAM) and a smart card it is possible to receive scrambled TV programs. This means that it is not necessary to have a separate Set Top Box to receive digital cable SDTV and HDTV programs (however this is still possible).

The removable smart card, distributed by cable companies, allows you to tune digital and high definition scrambled or encrypted cable channels through the cable antenna. The smart card is also required to receive premium digital TV channels and services (where available) through the cable. A smart card functionality includes conditional access and copy protection.

#### 9.4.2 Implementation

1. The receiver receives the digital data stream.
2. The data flows into the Conditional Access Module, which contains the content provider's unscrambling algorithms.
3. This module verifies the existence of a smart card that contains the subscriber's authorization code.
4. If the authorization code is accepted, the CAM unscrambles the data and returns the data to the receiver (if the code is not accepted, the data remains scrambled, restricting access).
5. The receiver then decodes the data and outputs it for viewing.

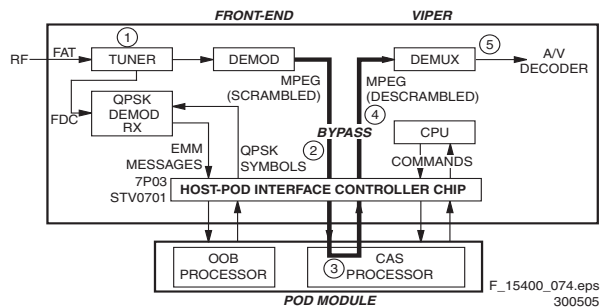


Figure 9-8 In Band channel reception (with smart card inserted)

#### Conditional Access Working Principle

The Conditional Access Module (CAM), also called POD (Point Of Deployment), is a removable CAM, implementing the Conditional Access (CA) system for a Host (i.e. the TV set). The CAM is inserted into a standard PCMCIA slot in the Host. When the CAM is inserted into the Host, it goes through an initialization procedure, which is called the "CAM personality change". This initialization procedure consists of:

- CAM and Host verify each other's identity by means of certificate and/or key exchange.
- Reporting CAM-ID and Host-ID to the Cable Head end, in order to entitle the CAM for descrambling services. In case of uni-directional operation (as for this chassis), this reporting requires user-interaction.
- Key generation for secure communication between CAM and Host.

After initialization, the CAM is used to unscramble any particular scrambled service in the In Band (IB) transport stream. The host must provide the selection choice (which program to descramble). The host can only do so if it gets specific data like PSIP (Program and System Information Protocol) data from the CAM.

The CAM implements a copy protection system, so the unscrambled Transport Stream signal from CAM to Host can be re-scrambled.



**CAM Stand-by Mode**

- CAM stack still alive:
  - Active Front-End.
  - Active VIPER, Stby-uP.
- Allows the CAM to request services:
  - Listen to OOB.
  - Firmware upgrade.

**Connector**

- Mechanical
  - 68 pins PCMCIA connector.
  - Voltage keying (LV type).
  - Type I, II, III.
- Hot plug ability
  - Initial,  $V_{CC}$  is applied to the socket.
  - Card detection (CD1 & CD2 = low).
  - Voltage sense pins (VS1 & VS2).
  - Power controller to set  $V_{CC}$  and  $V_{PP}$ .
- CIS structure
  - All PCMCIA cards have a CIS structure.
    - Information about size, speed, functions, ...
    - Distinguish between PC-card and CAM module with inserted smart card.
  - Before reading the CIS, the PCMCIA driver is in an 8-bit memory card mode with reduced address- and control lines (only purpose is to read the CIS).
  - After reading the CIS, there is a personality change and the driver is ready to communicate with a Cable-card.
  - Once a card's client driver successfully parses the CIS and obtains the system resources required by the card, it assigns the resources to the card via the COR (Configuration Option Register).

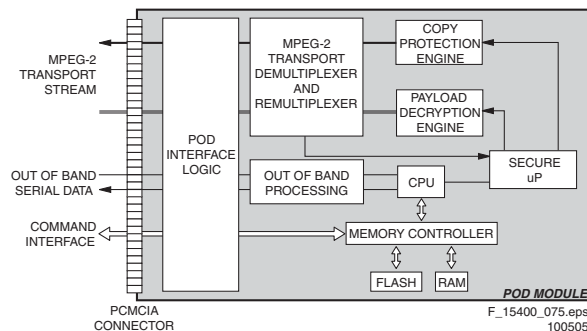


Figure 9-9 Example of CAM (POD) design

**9.4.3 Communication Channels****In Band (IB)**

- PAL - DVB-COFDM 2K/8K analog channels:
  - 8-VSB modulation (3 bits/symbol).
  - 51 - 858 MHz (UHF and VHF).
  - 6, 7 or 8 MHz bandwidth.
  - Not via CAM, but via MPIF.
  - With VBI (Vertical Blanking Interval) signals for closed captioning.

**9.5 MPIF (PNX 3000)**

For a (more) detailed description of the Multi Platform InterFace (MPIF; PNX 3000) converters see the BP2.xU manual.

**9.6 PNX2015**

The functional blocks of the PNX2015 are:

- Audio Video Input Processor (AVIP).
- 3D Comb Filter (COLUMBUS).
- High Definition MPEG Decoder (HD Subsystem).
- LVDS transmitter.
- Stand-by Processor for low-power control.

For a (more) detailed description of the PNX2015 see the BP2.xU manual.

**9.7 VIPER 2 (PNX 8550)****9.7.1 Introduction**

The PNX8550 is a highly integrated media processor intended for deployment in analog, digital, and hybrid TV receivers. It can be used for 100 Hz interlaced as well as 60 Hz progressive screens. It is fully capable of performing advanced video improvement algorithms, such as Digital Natural Motion™, on Standard Definition analog or digital sources. It includes an HD capable de-interlacer for converting interlaced HD transmission signals to progressive output for driving wide-XGA class Plasma or LCD displays. Two 32-bit 240 MHz VLIW media processors, referred to as the TriMedia TM3260 CPU core, carry out the advanced video improvement processing as well as all audio operations. Fixed hardware functions perform stable core video functions, such as picture level MPEG2 decoding, scaling, image composition and pixel post processing.

The PNX8550 provides a primary digital (YUV or RGB) output to connect to the display specific output processor. In addition, a secondary analog video output (CVBS or S-Video) for a VCR is available. This is the so-called DENC-out. It can operate either in analog PAL/NTSC or digital mode.

For a (more) detailed description of the PNX8550 see the BP2.xU manual.

**9.8 PACIFIC 3**

A new IC, called Pacific 3, provides Pixel Plus in all models. This ensures additional sharpening, and contrast and colour enhancements to the picture.

**9.9 Ambient Light**

For a (more) detailed description of the Ambient Light module see the BP2.xU manual.

## 9.10 Abbreviation List

|          |                                                                                                                                                           |         |                                                                                                                                                                                                                                                                                                                                                                    |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                                                                                                                           | CTI     | Color Transient Improvement: manipulates steepness of chroma transients                                                                                                                                                                                                                                                                                            |
| 0/6/12   | SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format                                        | CVBS    | Composite Video Blanking and Synchronization                                                                                                                                                                                                                                                                                                                       |
| 2DNR     | Spatial (2D) Noise Reduction                                                                                                                              | DAC     | Digital to Analogue Converter                                                                                                                                                                                                                                                                                                                                      |
| 3DNR     | Temporal (3D) Noise Reduction                                                                                                                             | DBE     | Dynamic Bass Enhancement: extra low frequency amplification                                                                                                                                                                                                                                                                                                        |
| AARA     | Automatic Aspect Ratio Adaptation: algorithm that adapts aspect ratio to remove horizontal black bars; keeps the original aspect ratio                    | DDC     | See "E-DDC"                                                                                                                                                                                                                                                                                                                                                        |
|          |                                                                                                                                                           | D/K     | Monochrome TV system. Sound carrier distance is 6.5 MHz                                                                                                                                                                                                                                                                                                            |
| ACI      | Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page                       | DFU     | Directions For Use: owner's manual                                                                                                                                                                                                                                                                                                                                 |
|          |                                                                                                                                                           | DMR     | Digital Media Reader: card reader                                                                                                                                                                                                                                                                                                                                  |
| ADC      | Analogue to Digital Converter                                                                                                                             | DNR     | Digital Noise Reduction: noise reduction feature of the set                                                                                                                                                                                                                                                                                                        |
| AFC      | Automatic Frequency Control: control signal used to tune to the correct frequency                                                                         | DRAM    | Dynamic RAM                                                                                                                                                                                                                                                                                                                                                        |
|          |                                                                                                                                                           | DRM     | Digital Rights Management                                                                                                                                                                                                                                                                                                                                          |
| AGC      | Automatic Gain Control: algorithm that controls the video input of the feature box                                                                        | DSP     | Digital Signal Processing                                                                                                                                                                                                                                                                                                                                          |
|          |                                                                                                                                                           | DST     | Dealer Service Tool: special remote control designed for service technicians                                                                                                                                                                                                                                                                                       |
| AM       | Amplitude Modulation                                                                                                                                      | DTCP    | Digital Transmission Content Protection; A protocol for protecting digital audio/video content that is traversing a high speed serial bus, such as IEEE-1394                                                                                                                                                                                                       |
| ANR      | Automatic Noise Reduction: one of the algorithms of Auto TV                                                                                               |         |                                                                                                                                                                                                                                                                                                                                                                    |
| AP       | Asia Pacific                                                                                                                                              | DVD     | Digital Versatile Disc                                                                                                                                                                                                                                                                                                                                             |
| AR       | Aspect Ratio: 4 by 3 or 16 by 9                                                                                                                           | DVI(-d) | Digital Visual Interface (d= digital only)                                                                                                                                                                                                                                                                                                                         |
| ASF      | Auto Screen Fit: algorithm that adapts aspect ratio to remove horizontal black bars without discarding video information                                  | EAS     | Emergency Alert Signalling; A cable TV standard (SCTE18) to signal emergency information to digital terminal devices                                                                                                                                                                                                                                               |
| ATSC     | Advanced Television Systems Committee, the digital TV standard in the USA                                                                                 | ECM     | Entitlement Control Message                                                                                                                                                                                                                                                                                                                                        |
|          |                                                                                                                                                           | E-DDC   | Enhanced Display Data Channel (VESA standard for communication channel and display). Using E-DDC, the video source can read the EDID information from the display.                                                                                                                                                                                                 |
| ATV      | See Auto TV                                                                                                                                               | EDID    | Extended Display Identification Data (VESA standard)                                                                                                                                                                                                                                                                                                               |
| Auto TV  | A hardware and software control system that measures picture content, and adapts image parameters in a dynamic way                                        | EEPROM  | Electrically Erasable and Programmable Read Only Memory                                                                                                                                                                                                                                                                                                            |
| AV       | External Audio Video                                                                                                                                      | EMI     | Electro Magnetic Interference                                                                                                                                                                                                                                                                                                                                      |
| AVIP     | Audio Video Input Processor                                                                                                                               | EMM     | Entitlement Management Message                                                                                                                                                                                                                                                                                                                                     |
| B/G      | Monochrome TV system. Sound carrier distance is 5.5 MHz                                                                                                   | EPLD    | Erasable Programmable Logic Device                                                                                                                                                                                                                                                                                                                                 |
| BTSC     | Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries          | EU      | Europe                                                                                                                                                                                                                                                                                                                                                             |
|          |                                                                                                                                                           | EXT     | EXTERNAL (source), entering the set by SCART or by cinches (jacks)                                                                                                                                                                                                                                                                                                 |
| B-TXT    | Blue TeleteXT                                                                                                                                             | FAT     | Forward Application Transport channel                                                                                                                                                                                                                                                                                                                              |
| C        | Centre channel (audio)                                                                                                                                    | FBL     | Fast BLanking: DC signal accompanying RGB signals                                                                                                                                                                                                                                                                                                                  |
| CA(M)    | Conditional Access (Module)                                                                                                                               |         |                                                                                                                                                                                                                                                                                                                                                                    |
| CEC      | Consumer Electronics Control bus: remote control bus on HDMI connections                                                                                  | FDC     | Full Dual Screen (same as FDW)                                                                                                                                                                                                                                                                                                                                     |
|          |                                                                                                                                                           | FDS     | Full Dual Window (same as FDS)                                                                                                                                                                                                                                                                                                                                     |
| CIS      | Card Information Structure: Protocol which identifies the card in a POD module                                                                            | FDW     | FLASH memory                                                                                                                                                                                                                                                                                                                                                       |
|          |                                                                                                                                                           | FLASH   | FLASH memory                                                                                                                                                                                                                                                                                                                                                       |
| CL       | Constant Level: audio output to connect with an external amplifier                                                                                        | FM      | Field Memory or Frequency Modulation                                                                                                                                                                                                                                                                                                                               |
| COFDM    | Coded Orthogonal Frequency Division Multiplexing                                                                                                          | FTV     | Flat TeleVision                                                                                                                                                                                                                                                                                                                                                    |
| COLUMBUS | COLOR LUMinance Baseband Universal Sub-system                                                                                                             | Gb/s    | Giga bits per second                                                                                                                                                                                                                                                                                                                                               |
| ComPair  | Computer aided rePair                                                                                                                                     | G-TXT   | Green TeleteXT                                                                                                                                                                                                                                                                                                                                                     |
| CP       | Connected Planet / Copy Protection                                                                                                                        | H       | H_sync to the module                                                                                                                                                                                                                                                                                                                                               |
| CSM      | Customer Service Mode                                                                                                                                     | HD      | High Definition                                                                                                                                                                                                                                                                                                                                                    |
| CSS      | Content Scrambling System; An encryption method for MPEG-2 video on DVDs. The algorithm and keys required to decode the disc are stored on the DVD-player | HDD     | Hard Disk Drive                                                                                                                                                                                                                                                                                                                                                    |
|          |                                                                                                                                                           | HDCP    | High-bandwidth Digital Content Protection: A "key" encoded into the HDMI/DVI signal that prevents video data piracy. If a source is HDCP coded and connected via HDMI/DVI without the proper HDCP decoding, the picture is put into a "snow vision" mode or changed to a low resolution. For normal content distribution the source and the display device must be |

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                                                                                                                                                                                                                                                                               |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | enabled for HDCP "software key" decoding.                                                                                                                                                                                                                                                                                                                                                                                                                                   | O/C              | Open Circuit                                                                                                                                                                                                                                                                  |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | OOB              | Out Of Band channel                                                                                                                                                                                                                                                           |
| HDMI             | High Definition Multimedia Interface                                                                                                                                                                                                                                                                                                                                                                                                                                        | OSD              | On Screen Display                                                                                                                                                                                                                                                             |
| HP               | HeadPhone                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | OTC              | On screen display Teletext and Control; also called Artistic (SAA5800)                                                                                                                                                                                                        |
| I                | Monochrome TV system. Sound carrier distance is 6.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                     | P50              | Project 50: communication protocol between TV and peripherals                                                                                                                                                                                                                 |
| I <sup>2</sup> C | Integrated IC bus                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PAL              | Phase Alternating Line. Color system mainly used in West Europe (color carrier= 4.433619 MHz) and South America (color carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)                                                                                                   |
| I <sup>2</sup> D | Integrated IC Data bus                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                                                                                                                                                                                                                                                                               |
| I <sup>2</sup> S | Integrated IC Sound bus                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                                                                                                                                               |
| IB               | In Band channel                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                                                                                                                                                                                                                                                                               |
| IF               | Intermediate Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                                                                                                                                                                                                                                                                               |
| Interlaced       | Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.                                                                                                                                                                                                                                                                                           | PCB              | Printed Circuit Board (same as "PWB")                                                                                                                                                                                                                                         |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PCM              | Pulse Code Modulation                                                                                                                                                                                                                                                         |
| IR               | Infra Red                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PCMCIA           | Personal Computer Memory Card International Association                                                                                                                                                                                                                       |
| IRQ              | Interrupt Request                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |                                                                                                                                                                                                                                                                               |
| ITU-656          | The ITU Radio communication Sector (ITU-R) is a standards body subcommittee of the International Telecommunication Union relating to radio communication. ITU-656 (a.k.a. SDI), is a digitized video format used for broadcast grade video. Uncompressed digital component or digital composite signals can be used. The SDI signal is self-synchronizing, uses 8 bit or 10 bit data words, and has a maximum data rate of 270 Mbit/s, with a minimum bandwidth of 135 MHz. | PDP              | Plasma Display Panel                                                                                                                                                                                                                                                          |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PFC              | Power Factor Corrector (or Pre-conditioner)                                                                                                                                                                                                                                   |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PIP              | Picture In Picture                                                                                                                                                                                                                                                            |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PLL              | Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency                                                                                                                                                                     |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | POD              | Point Of Deployment: A removable CAM module, implementing the CA system for a host (e.g. a TV-set)                                                                                                                                                                            |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | POR              | Power On Reset, signal to reset the uP                                                                                                                                                                                                                                        |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Progressive Scan | Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.                                                                                                                                                            |
| ITV              | Institutional TeleVision; TV sets for hotels, hospitals etc.                                                                                                                                                                                                                                                                                                                                                                                                                | PSIP             | Program and System Information Protocol: A standard for (broadcast) digital television. PSIP consists of channel mapping data, program guide data, information about closed captions and content advisory ratings, and other data related to the current and future programs. |
| JOP              | Jaguar Output Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                                                                                                                                                                                                                                                                               |
| LS               | Last Status; The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences                                                                                                                                                                                                                                                                              | PTC              | Positive Temperature Coefficient, non-linear resistor                                                                                                                                                                                                                         |
| LATAM            | Latin America                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PWB              | Printed Wiring Board (same as "PCB")                                                                                                                                                                                                                                          |
| LCD              | Liquid Crystal Display                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PWM              | Pulse Width Modulation                                                                                                                                                                                                                                                        |
| LED              | Light Emitting Diode                                                                                                                                                                                                                                                                                                                                                                                                                                                        | QAM              | Quadrature Amplitude Modulation; modulation method                                                                                                                                                                                                                            |
| L/L'             | Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I                                                                                                                                                                                                                                                                                                                                                                     | QTNR             | Quality Temporal Noise Reduction                                                                                                                                                                                                                                              |
| LORE             | LOcal REgression approximation noise reduction                                                                                                                                                                                                                                                                                                                                                                                                                              | QVCP             | Quality Video Composition Processor                                                                                                                                                                                                                                           |
| LPL              | LG.Philips LCD (supplier)                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RAM              | Random Access Memory                                                                                                                                                                                                                                                          |
| LS               | Loudspeaker                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RGB              | Red, Green, and Blue. The primary color signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced.                                                                                                                                                    |
| LVDS             | Low Voltage Differential Signalling                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                                                                                                                                                                                                                                                                               |
| Mbps             | Mega bits per second                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RC               | Remote Control                                                                                                                                                                                                                                                                |
| M/N              | Monochrome TV system. Sound carrier distance is 4.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                     | RC5 / RC6        | Signal protocol from the remote control receiver                                                                                                                                                                                                                              |
| MOP              | Matrix Output Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RESET            | RESET signal                                                                                                                                                                                                                                                                  |
| MOSFET           | Metal Oxide Silicon Field Effect Transistor, switching device                                                                                                                                                                                                                                                                                                                                                                                                               | ROM              | Read Only Memory                                                                                                                                                                                                                                                              |
| MPEG             | Motion Pictures Experts Group                                                                                                                                                                                                                                                                                                                                                                                                                                               | R-TXT            | Red Teletext                                                                                                                                                                                                                                                                  |
| MPIF             | Multi Platform InterFace                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RRT              | Regional Rating Table                                                                                                                                                                                                                                                         |
| MUTE             | MUTE Line                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SAM              | Service Alignment Mode                                                                                                                                                                                                                                                        |
| NC               | Not Connected                                                                                                                                                                                                                                                                                                                                                                                                                                                               | S/C              | Short Circuit                                                                                                                                                                                                                                                                 |
| NICAM            | Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.                                                                                                                                                                                                                                                                                                                                                                    | SCART            | Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs                                                                                                                                                                                                        |
| NTC              | Negative Temperature Coefficient, non-linear resistor                                                                                                                                                                                                                                                                                                                                                                                                                       | SCL              | Serial Clock I <sup>2</sup> C                                                                                                                                                                                                                                                 |
| NTSC             | National Television Standard Committee. Color system mainly used in North America and Japan. Color carrier NTSC M/N= 3.579545 MHz, NTSC 4.43= 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)                                                                                                                                                                                                                                                              | SCL-F            | CLock Signal on Fast I <sup>2</sup> C bus                                                                                                                                                                                                                                     |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SD               | Standard Definition                                                                                                                                                                                                                                                           |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SDA              | Serial Data I <sup>2</sup> C                                                                                                                                                                                                                                                  |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SDA-F            | DAta Signal on Fast I <sup>2</sup> C bus                                                                                                                                                                                                                                      |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SDI              | Serial Digital Interface, see "ITU-656"                                                                                                                                                                                                                                       |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SDRAM            | Synchronous DRAM                                                                                                                                                                                                                                                              |
| NVM              | Non-Volatile Memory: IC containing TV related data such as alignments                                                                                                                                                                                                                                                                                                                                                                                                       | SECAM            | Sequence Couleur Avec Memoire. Color system mainly used in France                                                                                                                                                                                                             |

|         |                                      |
|---------|--------------------------------------|
|         | and East Europe. Color carriers=     |
|         | 4.406250 MHz and 4.250000 MHz        |
| SIF     | Sound Intermediate Frequency         |
| SMPS    | Switched Mode Power Supply           |
| SOG     | Sync On Green                        |
| SOPS    | Self Oscillating Power Supply        |
| S/PDIF  | Sony Philips Digital InterFace       |
| SRAM    | Static RAM                           |
| SSB     | Small Signal Board                   |
| STBY    | STandBY                              |
| SOG     | Sync On Green                        |
| SVGA    | 800x600 (4:3)                        |
| SVHS    | Super Video Home System              |
| SW      | Software                             |
| SWAN    | Spatial temporal Weighted Averaging  |
|         | Noise reduction                      |
| SXGA    | 1280x1024                            |
| TFT     | Thin Film Transistor                 |
| THD     | Total Harmonic Distortion            |
| TMDS    | Transmission Minimized Differential  |
|         | Signalling                           |
| TXT     | TeleteXT                             |
| TXT-DW  | Dual Window with TeleteXT            |
| uP      | Microprocessor                       |
| UXGA    | 1600x1200 (4:3)                      |
| V       | V-sync to the module                 |
| VCR     | Video Cassette Recorder              |
| VESA    | Video Electronics Standards          |
|         | Association                          |
| VGA     | 640x480 (4:3)                        |
| VL      | Variable Level out: processed audio  |
|         | output toward external amplifier     |
| VSB     | Vestigial Side Band; modulation      |
|         | method                               |
| WYSIWYR | What You See Is What You Record:     |
|         | record selection that follows main   |
|         | picture and sound                    |
| WXGA    | 1280x768 (15:9)                      |
| XTAL    | Quartz crystal                       |
| XGA     | 1024x768 (4:3)                       |
| Y       | Luminance signal                     |
| Y/C     | Luminance (Y) and Chrominance (C)    |
|         | signal                               |
| YPbPr   | Component video. Luminance and       |
|         | scaled color difference signals (B-Y |
|         | and R-Y)                             |
| YUV     | Component video                      |

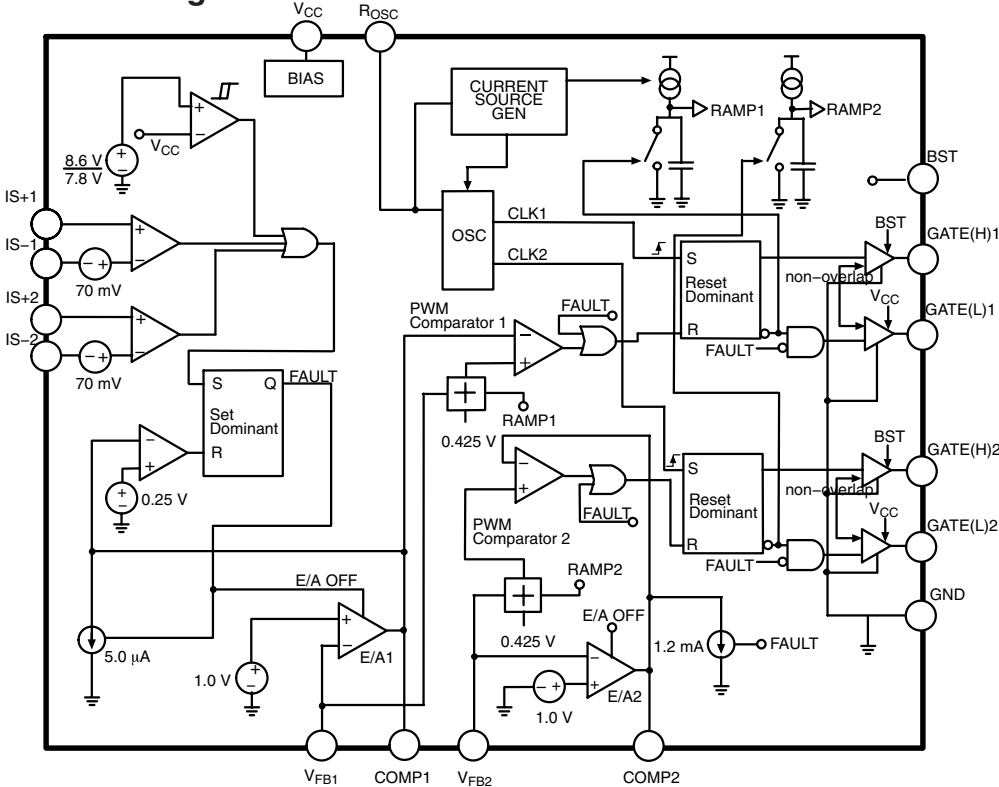
9.11 IC Data Sheets

electrical diagrams (with the exception of "memory" and "logic" ICs).

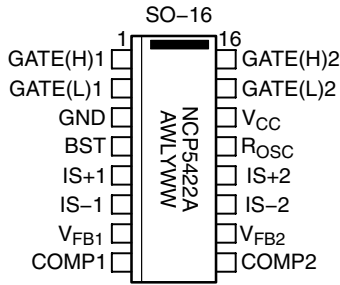
This section shows the internal block diagrams and pin configurations of ICs that are drawn as "black boxes" in the

9.11.1 Diagram B1A, NCP5422AD (IC 7U00)

Block Diagram



Pin Configuration



A = Assembly Location  
WL = Wafer Lot  
Y = Year  
WW = Work Week

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240505

Figure 9-10 Internal block diagram and pin configuration



## 9.11.2 Diagram B2A, TD1316AF (IC 1T05)

## Block Diagram

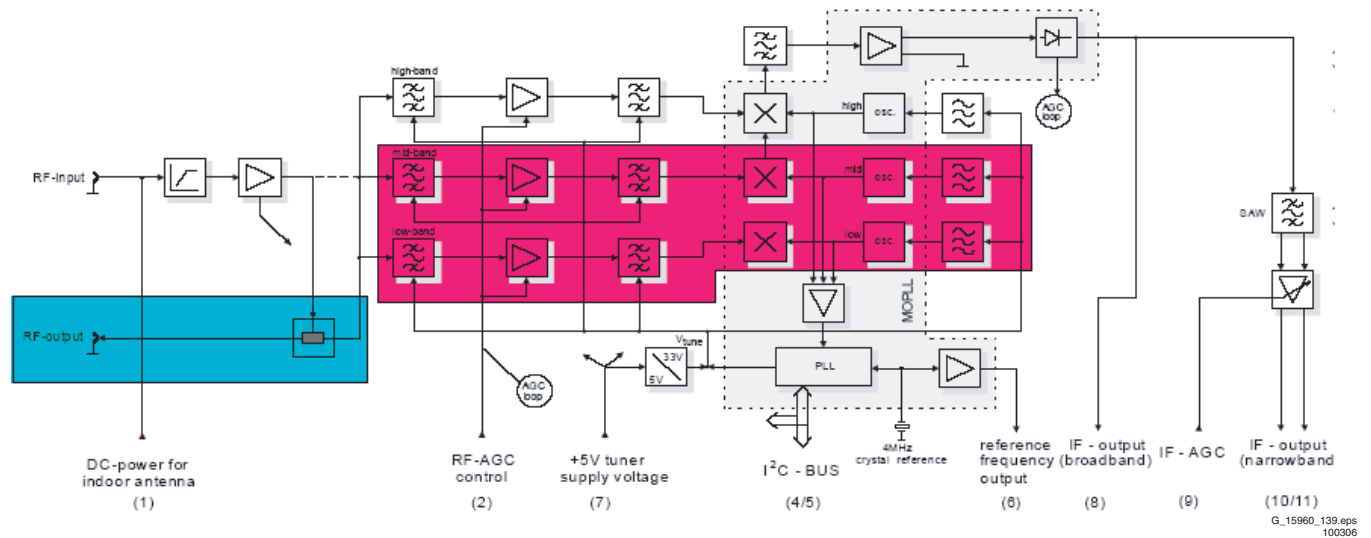


Figure 9-11 Internal block diagram

## 9.11.3 Diagram B2B, TDA10046AHT (IC 7T17)

## Block Diagram

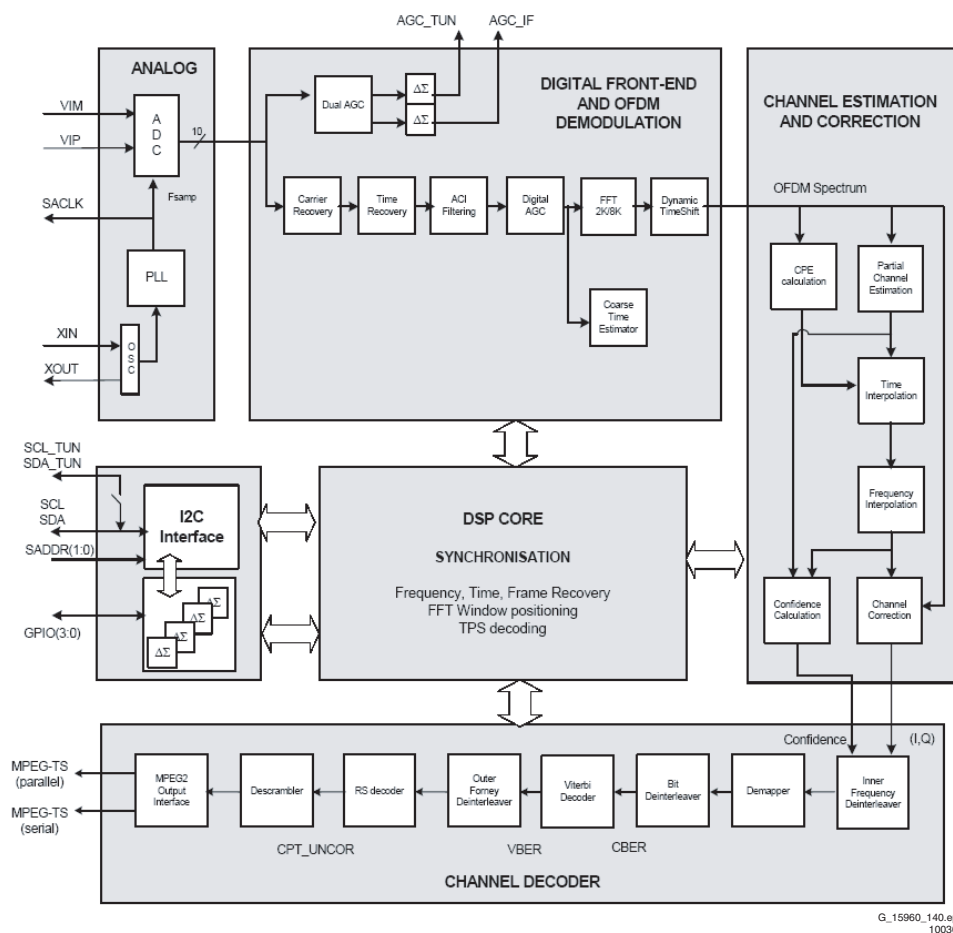
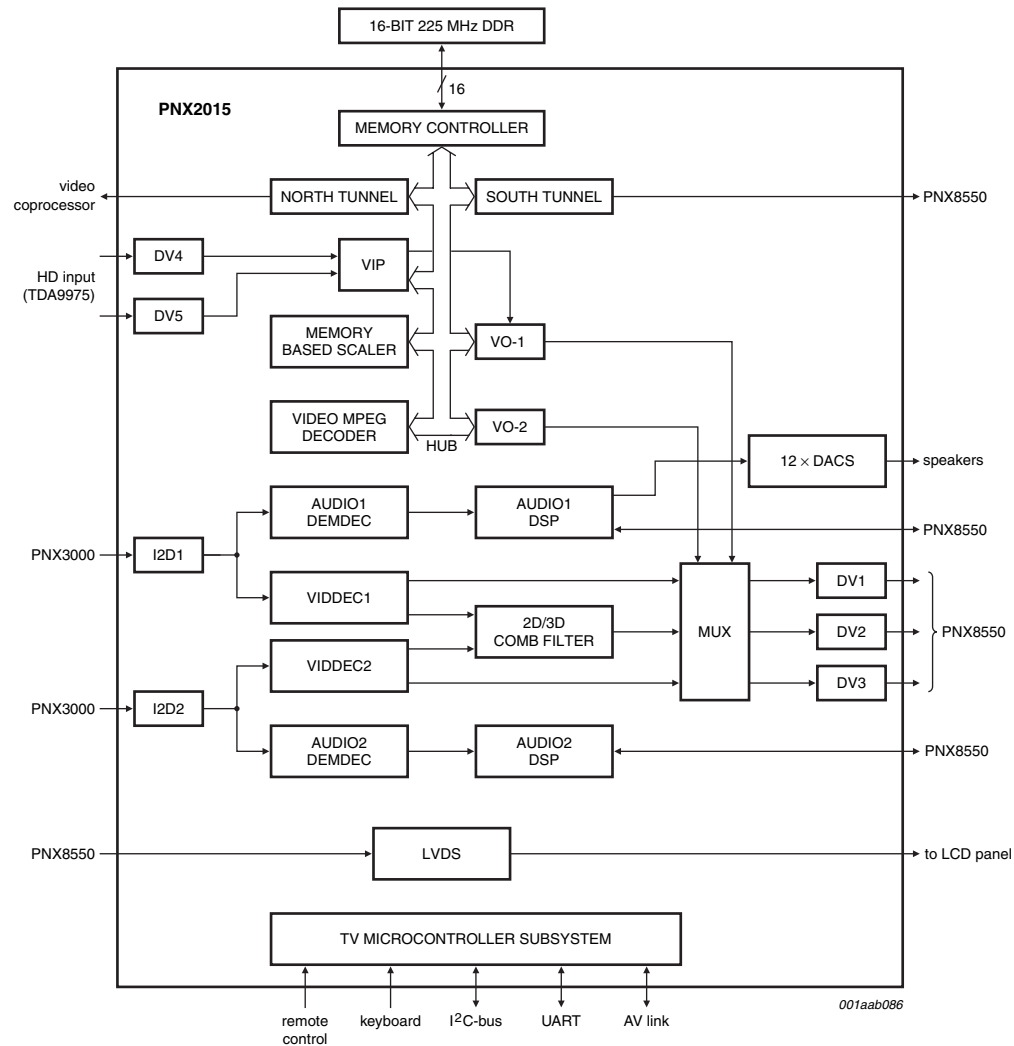


Figure 9-12 Internal block diagram



9.11.5 Diagram B4x, PNX2015E (IC 7J00)

Block Diagram



Pin Configuration

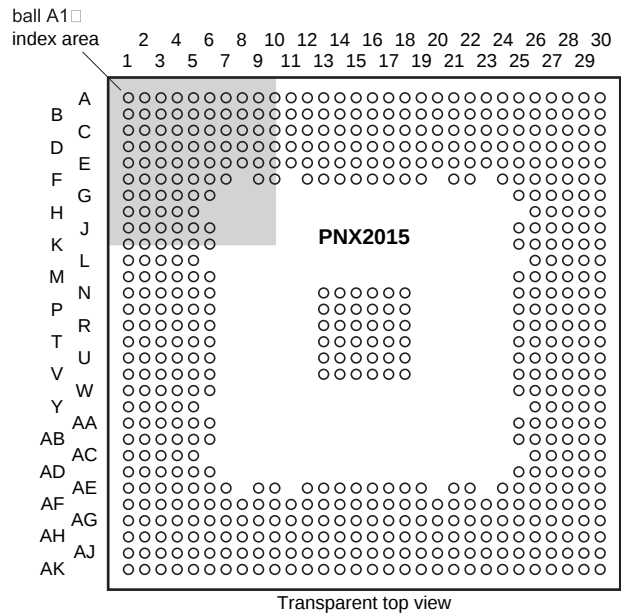
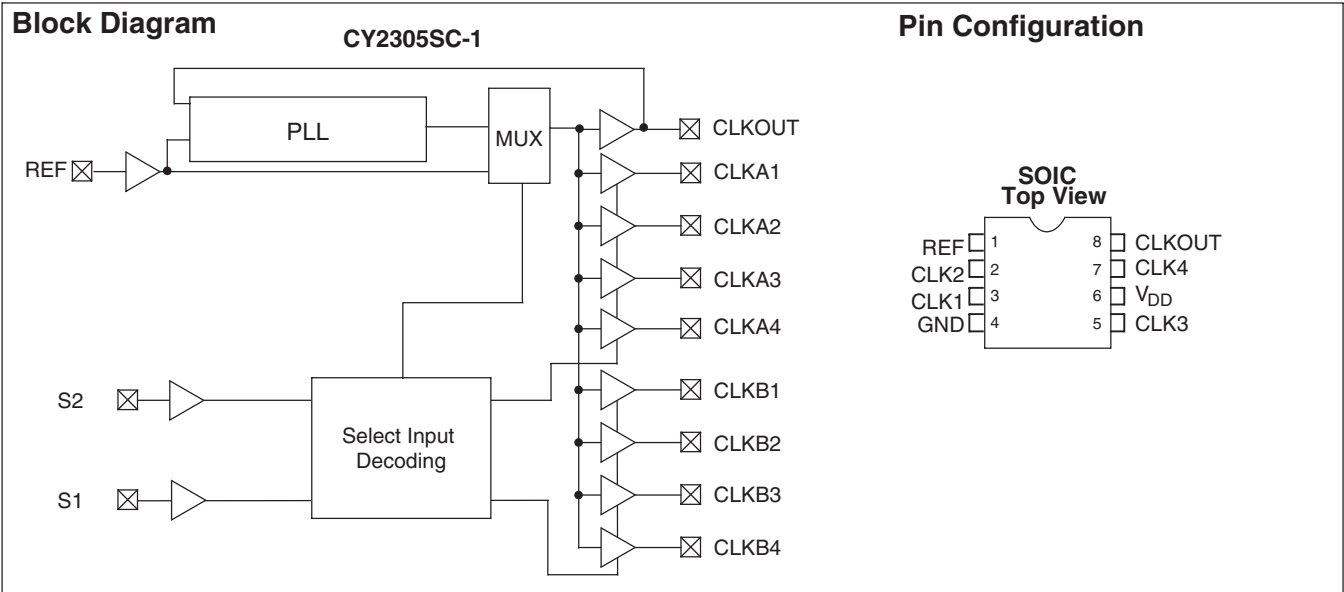


Figure 9-14 Internal block diagram and pin configuration

9.11.6 Diagram B4A, CY2305SC-1 (IC 7J08)

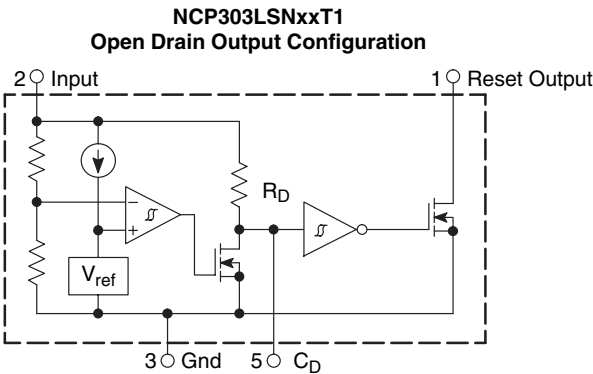


E\_14620\_146.eps  
241004

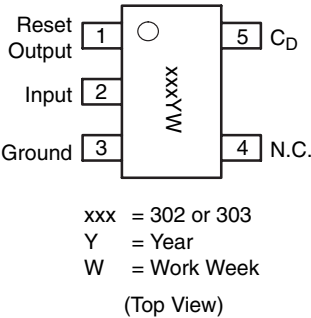
Figure 9-15 Internal block diagram and pin configuration

9.11.7 Diagram B4E, NCP303LSN (IC 7LB0 - 7LB4)

Block Diagram



Pin Configuration

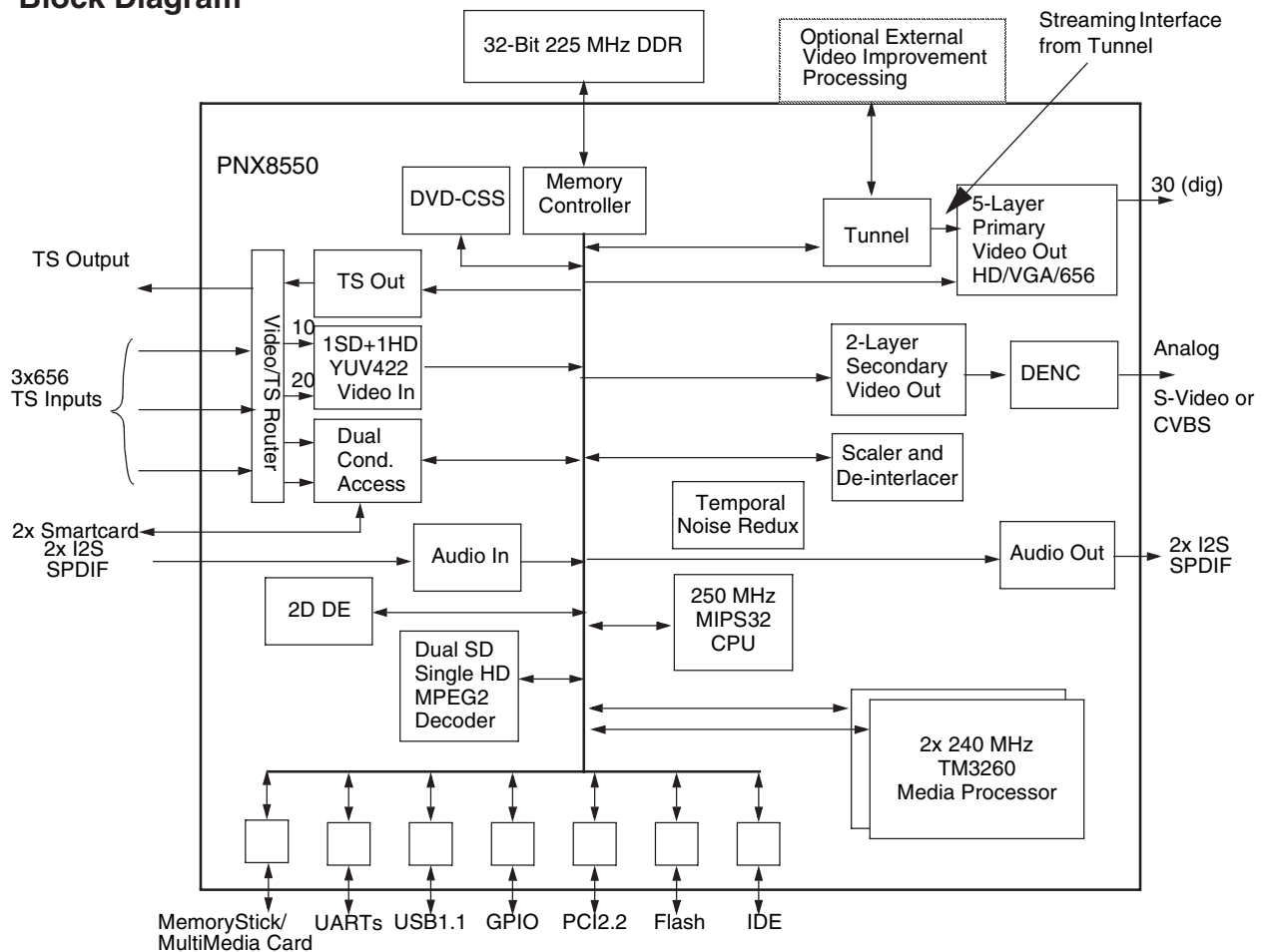


F\_15400\_133.eps  
230905

Figure 9-16 Internal block diagram and pin configuration

## 9.11.8 Diagram B5x, PNX8550EH (IC 7V00)

## Block Diagram



## Pin Configuration

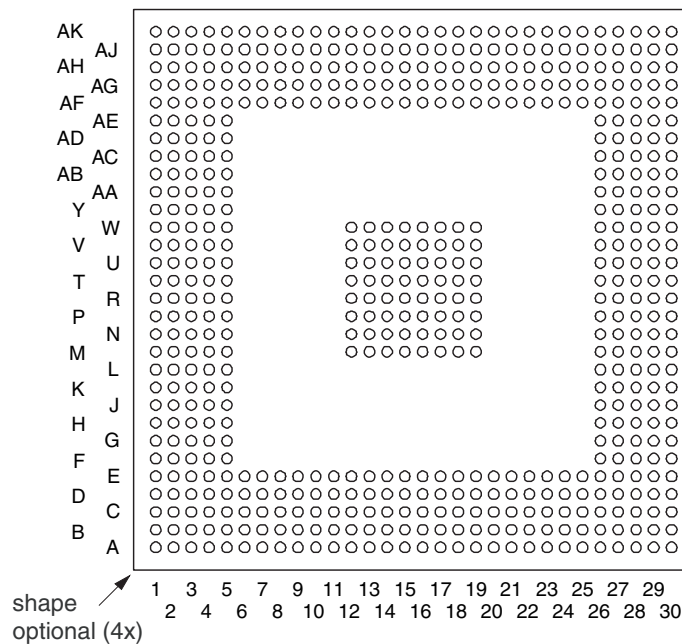
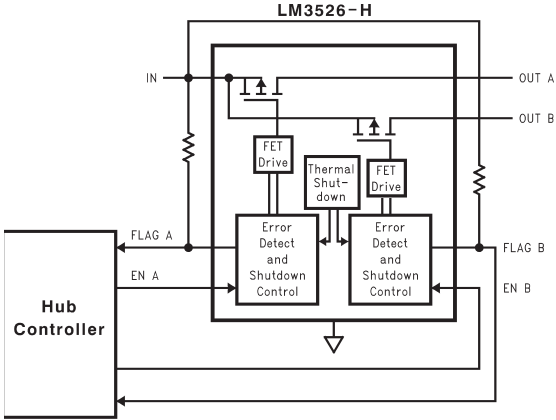
E\_14700\_088.eps  
250505

Figure 9-17 Internal block diagram and pin configuration

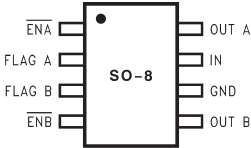


9.11.9 Diagram B5A, LM3526MX (IC 7Q01)

Block Diagram



Pin Configuration



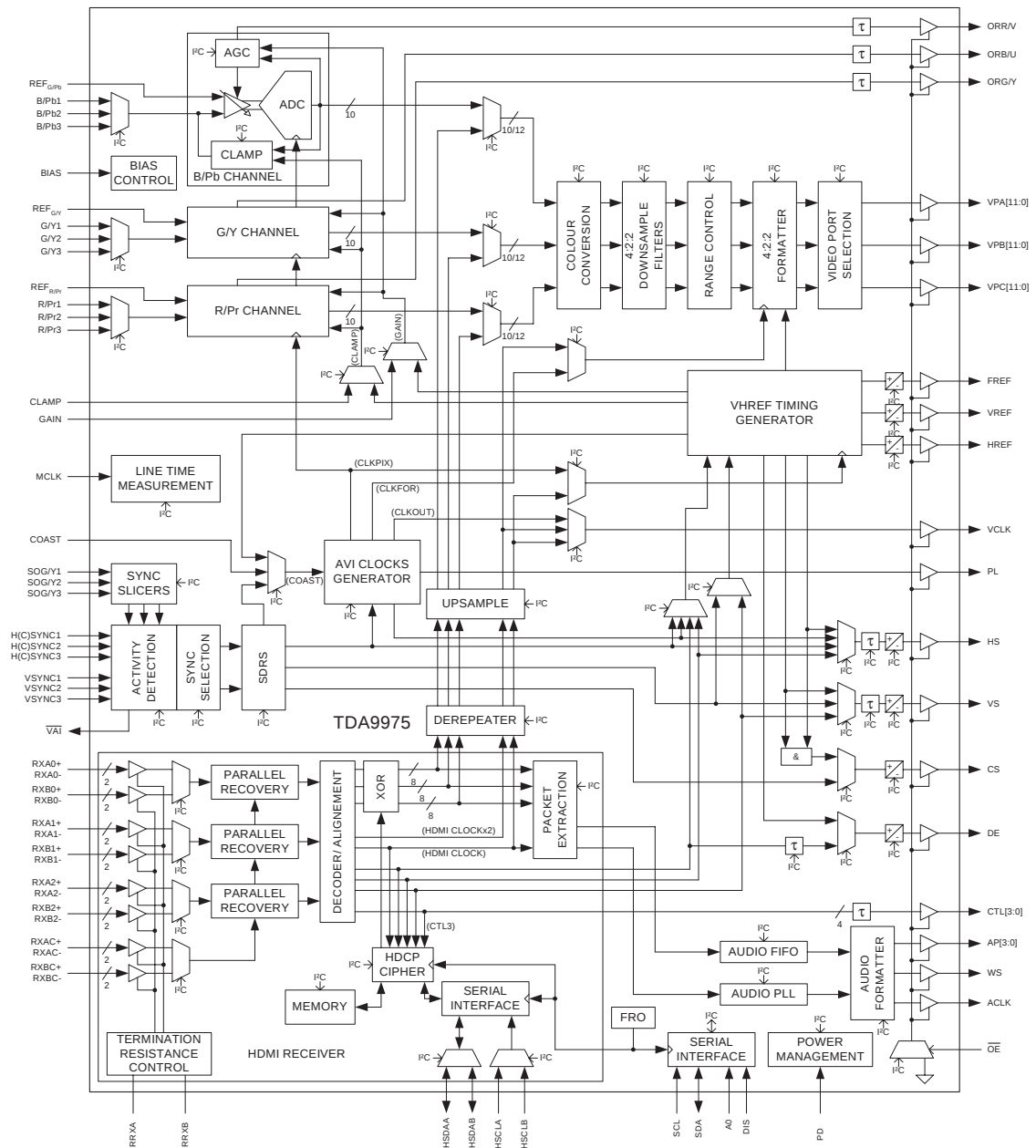
LM3526-L

F\_15400\_134.eps  
230905

Figure 9-18 Internal block diagram and pin configuration

## 9.11.10 Diagram B7B &amp; B7C, TDA9975EL (IC 7B11)

## Block Diagram



## Pin Configuration

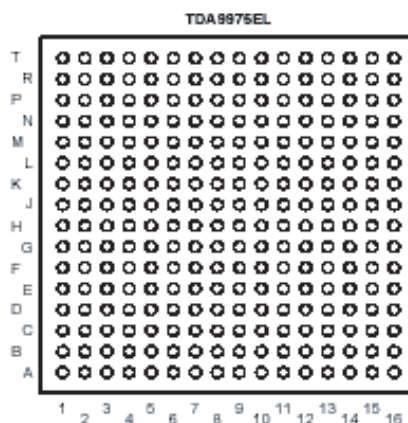
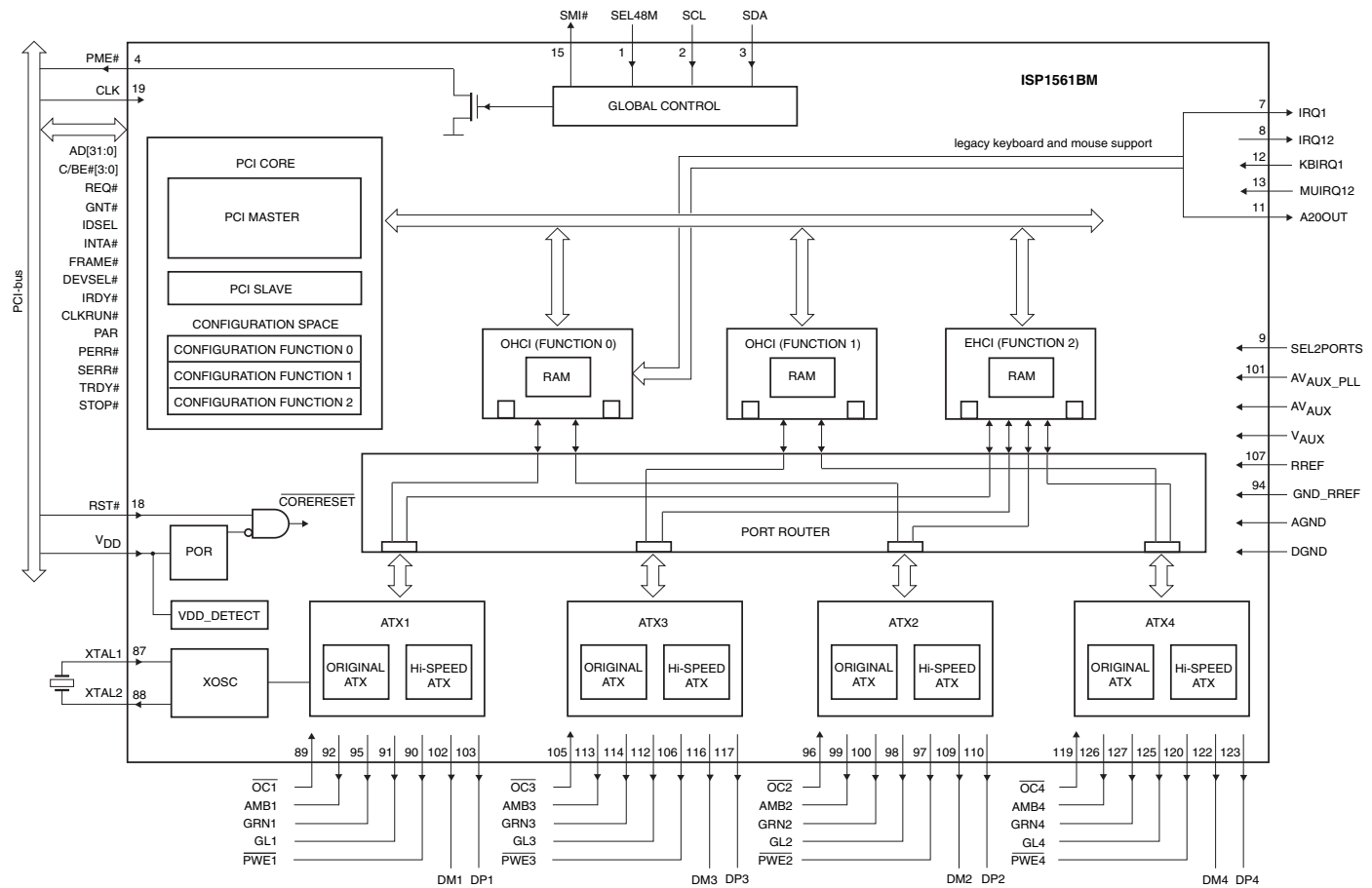
F\_15400\_135.eps  
240505

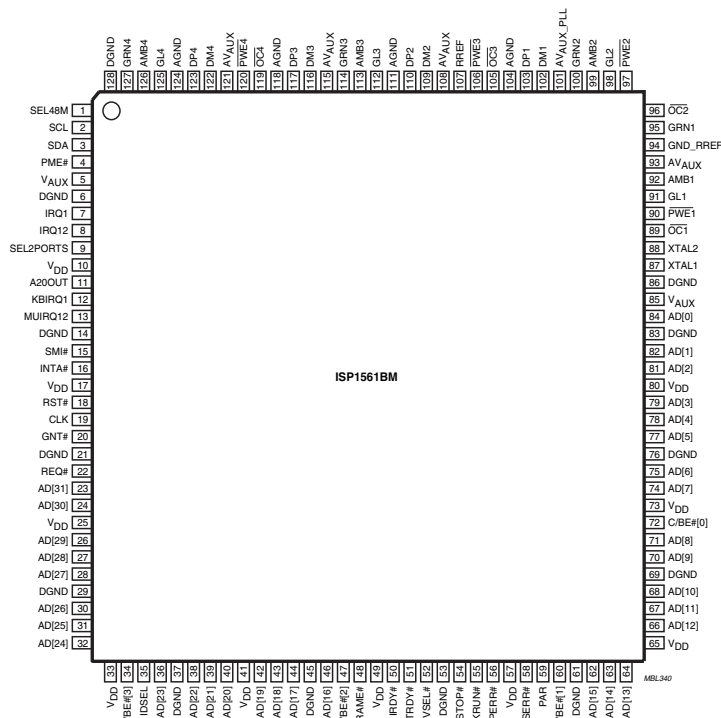
Figure 9-19 Internal block diagram and pin configuration

### 9.11.11 Diagram B8, ISP1561BM (IC 7N00)

## Block Diagram



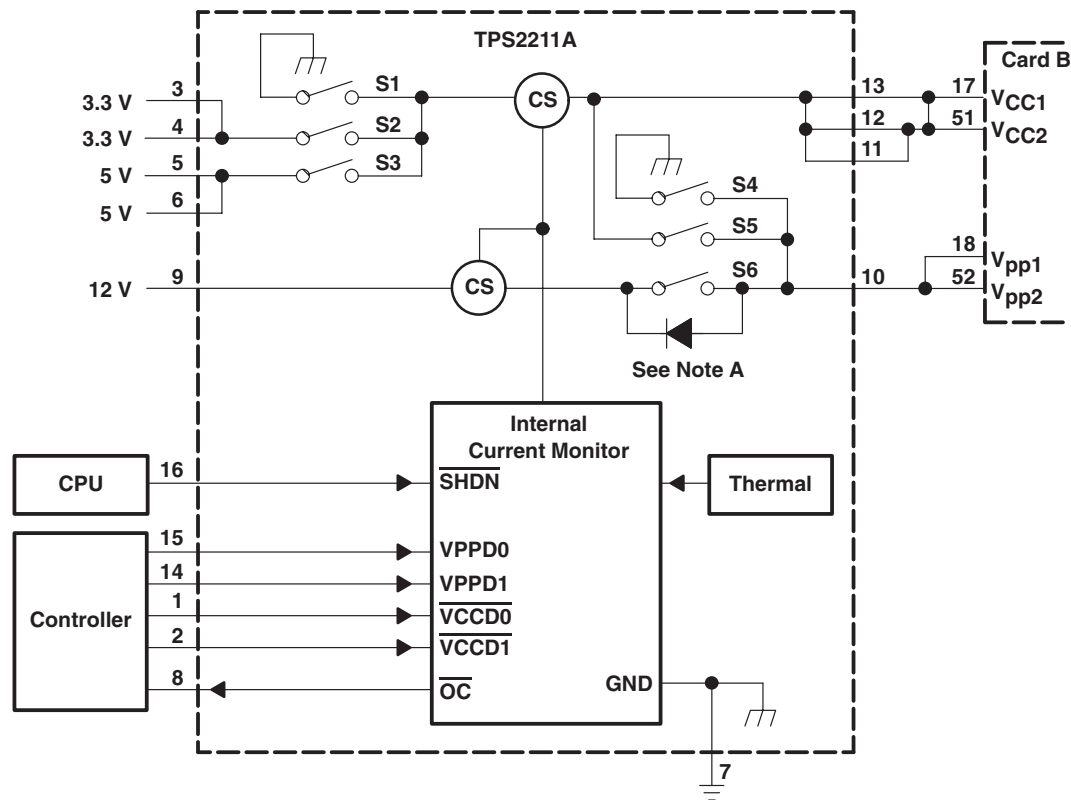
## Pin Configuration



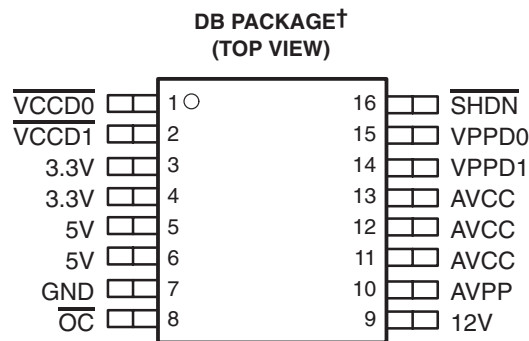
**Figure 9-20 Internal block diagram and pin configuration**

9.11.12 Diagram B10A, TPS2211AIDB (IC 7P00)

Block Diagram



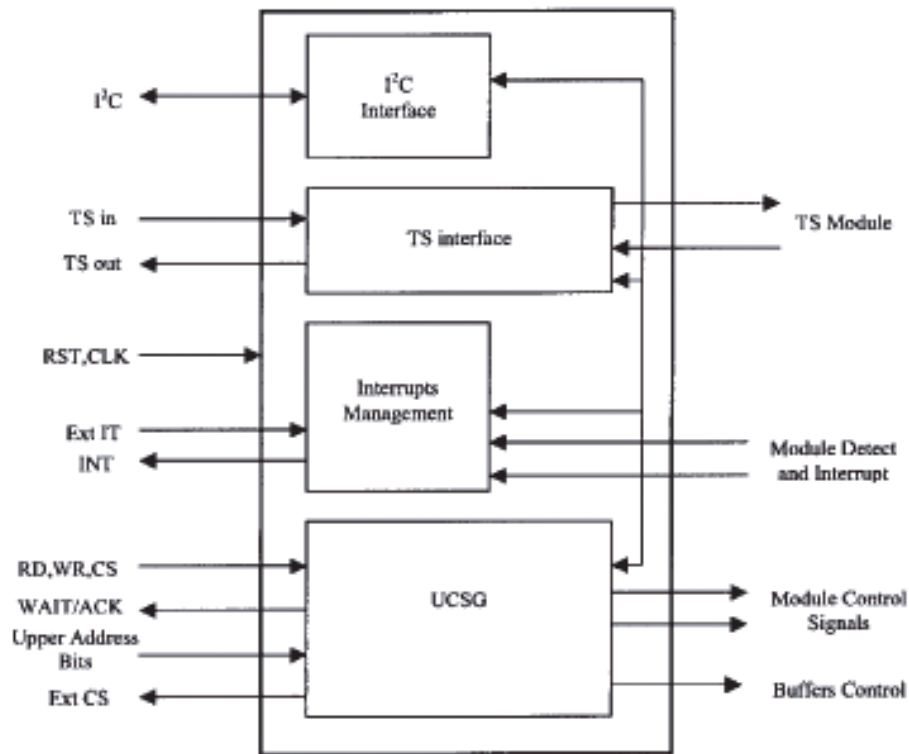
Pin Configuration



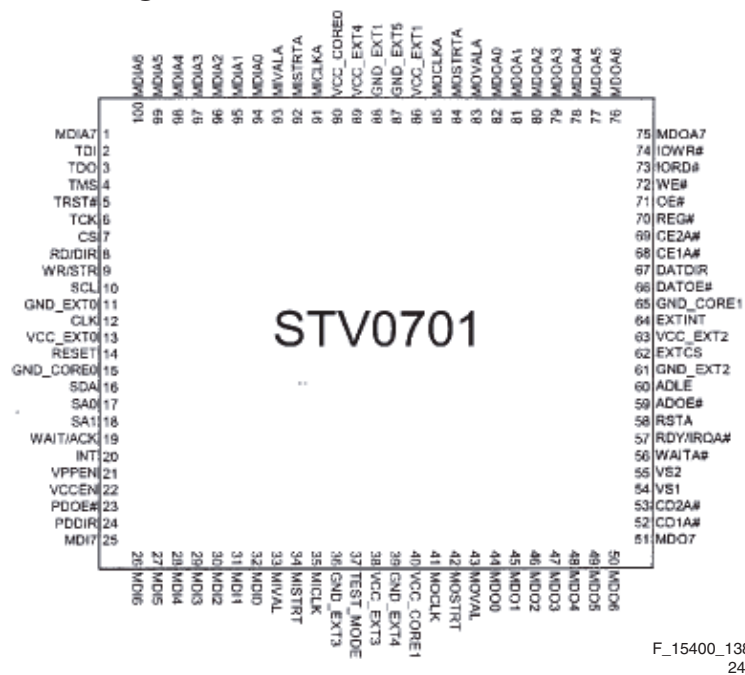
F\_15400\_137.eps  
240505

Figure 9-21 Internal block diagram and pin configuration

## Block Diagram



## Pin Configuration

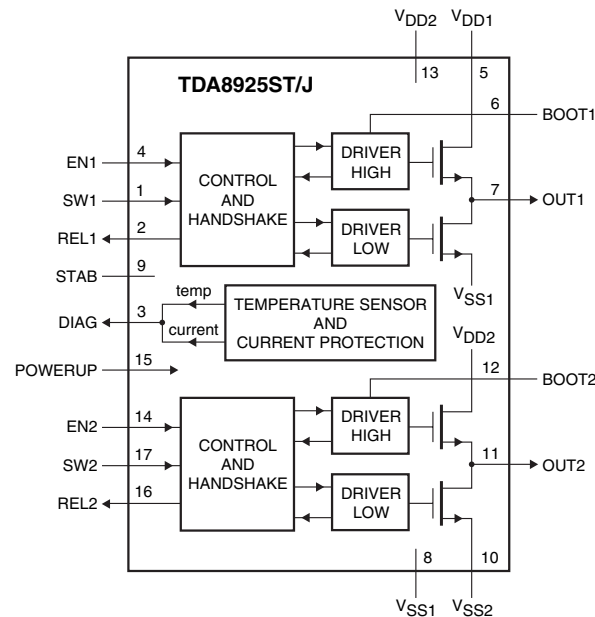


**Figure 9-22 Internal block diagram and pin configuration**



9.11.14 Diagram C, TDA8925ST (IC 7701)

Block Diagram



Pin Configuration

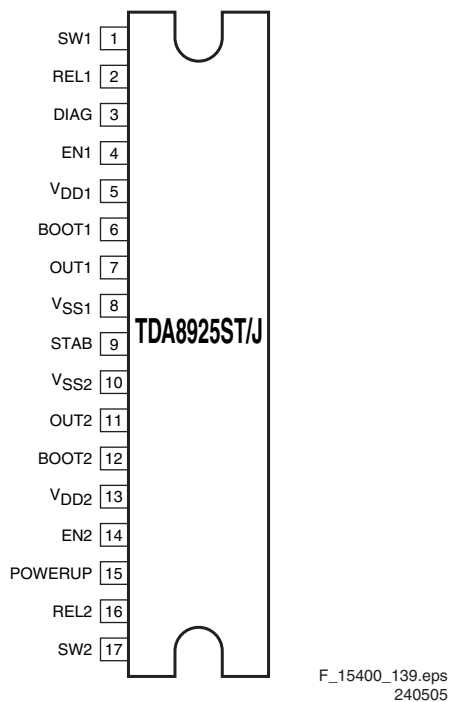


Figure 9-23 Internal block diagram and pin configuration

10. Spare Parts List

| Sets Included       |                |                         |
|---------------------|----------------|-------------------------|
| 42PF9631D/10        |                |                         |
| Set Level           |                |                         |
| Various             |                |                         |
| 1004▲               | 9322 235 43682 | FPF42C128135UA-52       |
| 1017                | 3104 328 35671 | Externals Assy [BE]     |
| 1062▲               | 2422 549 00151 | Socket 3p m             |
| 1112                | 3104 328 45811 | LED Panel Assy [J]      |
| 1115                | 3104 328 40611 | Side I/O Assy USB [D]   |
| 1131                | 2722 171 00378 | AmbiLight Assy [AL]     |
| 1132                | 2722 171 00379 | AmbiLight Assy [AL]     |
| 1164                | 3104 328 42731 | AmbiLight Assy [AL]     |
| 1166                | 3104 328 42731 | AmbiLight Assy [AL]     |
| 8000                | 3104 311 11472 | Cable 2p3/680/2p        |
| 8000                | 3104 311 11851 | Cable 4p5/1k3/4p5 Bk    |
| 8000                | 3104 311 11901 | Cable 2p3/820/2p        |
| 8121                | 3104 311 11011 | Cable 6p/1k3/6p Wh      |
| 8136                | 3104 311 07951 | Cable 11p/680/11p       |
| 8150                | 3104 311 08082 | Cable 31p/350/30p       |
| 8152                | 3104 311 09231 | Cable 9p/480/9p         |
| 8199▲               | 3104 311 07911 | Cable ring/180/ring     |
| 8201                | 2422 076 00783 | Cable USB-A 1M0 4P Bk   |
| 8202                | 3104 311 08651 | Cable 9p/340/9p         |
| 8240                | 3104 311 10451 | Cable FFC 40p/120/40p   |
| 8262                | 3104 311 10461 | Cable FFC 20p/180/20p   |
| 8264                | 3104 311 09871 | Cable 4p/220/4p         |
| 8323                | 3104 311 10361 | Cable 10p/280/10p       |
| 8509                | 3104 311 11403 | Cable 4p/1k5/4p         |
| 8900                | 3104 311 10931 | Wire ring /220/ring 4.3 |
| 8302                | 3104 311 00311 | Cable 7p/100/7p Wh      |
| 8508                | 3104 311 11011 | Cable 6p/1k3/6p Wh      |
| 8539                | 3104 311 06551 | Cable 3p/1300/3p        |
| 8921                | 3104 311 08731 | Cable POSI/100/POSI     |
|                     |                |                         |
| 5222                | 3141 130 00191 | Loudsp. 4Ω 15W          |
| 5223                | 3141 130 00201 | Loudsp. 4Ω 15W          |
| Display Supply [AD] |                |                         |
| Various             |                |                         |
| 0308▲               | 4822 265 20723 | Connector 2p            |
| 0309                | 4822 267 10973 | Connector 1p            |
| 0311                | 2422 025 10769 | Connector 9p m          |
| 0323                | 2422 025 15085 | Connector 10p m         |
| 1004▲               | 2422 086 00676 | Fuse 2A T 250V          |
| 1082▲               | 2422 086 00677 | Fuse 2.5A T 250V        |
| 1083▲               | 2422 086 00677 | Fuse 2.5A T 250V        |
| 1110▲               | 2422 086 00678 | Fuse 2A T 250V          |
| 1200▲               | 2422 086 00676 | Fuse 5A T 250V          |
| 1400▲               | 4822 070 36302 | Fuse 6.3A               |
| 1402▲               | 4822 252 60151 | Surge protect           |
| 1406                | 4822 252 60151 | Surge protect           |
| 1450▲               | 2422 132 00025 | Relay 1p 5V 10/80A      |
| 1460▲               | 2422 132 00025 | Relay 1p 5V 10/80A      |
| 1P02                | 4822 265 20723 | Connector 2p            |
| 1P10                | 4822 267 10557 | Connector 10p           |
| 1P22                | 2422 025 16374 | Connector 2p m          |
| 8103                | 3104 311 06701 | Cable 10p/480/10p       |
| 8146                | 3104 311 08051 | Cable 11p/560/11p Wh    |
| 8402▲               | 3104 311 11591 | Cable 2p3/820/2p3 Wh    |
| 8410▲               | 3104 311 11601 | Cable 10p/480/10p Wh    |
| 8422▲               | 3104 311 11581 | Cable 2p3/1k/2k3 Bk     |
|                     |                |                         |
| — —                 |                |                         |
| 2000                | 2022 554 04155 | 470pF 20% 250V          |
| 2001▲               | 2222 338 22474 | 470nF 20% 275V          |
| 2005                | 2238 867 18101 | 100pF 1% 50V 0603       |
| 2006                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2007                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2008                | 5322 126 11583 | 10nF 10% 50V 0603       |
| 2010                | 5322 126 11583 | 10nF 10% 50V 0603       |
| 2011                | 2222 375 24153 | 15nF 5% 1kV             |
| 2012                | 4822 126 11254 | 330pF 10% 2kV           |
| 2013                | 4822 126 11254 | 330pF 10% 2kV           |
| 2014                | 4822 126 11862 | 1.5nF 10% 2kV           |
| 2015                | 5322 126 11583 | 10nF 10% 50V 0603       |
| 2017                | 2222 375 24153 | 15nF 5% 1kV             |
| 2018                | 2238 867 18101 | 100pF 1% 50V 0603       |
| 2019                | 2022 554 04155 | 470pF 20% 250V          |
| 2020                | 2020 024 90737 | 3300µF 20% 100V         |
| 2021                | 2020 024 90737 | 3300µF 20% 100V         |
| 2022                | 2020 021 91354 | 1000µF 20% 50V          |
| 2023                | 2222 580 15649 | 100nF 10% 50V 0805      |
| 2024                | 3198 035 03320 | 3.3nF 5% 50V 0402       |
| 2025                | 4822 124 12084 | 1µF 20% 50V             |
| 2026                | 2020 552 96623 | 2.2nF 10% 50V 0402      |
| 2027                | 2020 552 96631 | 15nF 10% 16V 0402       |
| 2028                | 2252 053 63221 | 220pF 10% 200V 0805     |
| 2029                | 2252 053 63221 | 220pF 10% 200V 0805     |
| 2030                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2031                | 2020 552 96628 | 10nF 10% 16V 0402       |
| 2032                | 2238 586 15641 | 22nF 10% 50V 0603       |
| 2033                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2034                | 4822 126 14525 | 47pF 5% 1kV             |
| 2035                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2036                | 2238 586 15641 | 22nF 10% 50V 0603       |
| 2037                | 4822 126 14525 | 47pF 5% 1kV             |
| 2038                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2039                | 2020 552 96623 | 2.2nF 10% 50V 0402      |
| 2040                | 3198 034 02790 | 47pF 1% 50V 0402        |
| 2041                | 2238 869 15101 | 100pF 5% 50V 0402       |
| 2042                | 3198 035 03310 | 330pF 5% 50V 0402       |
| 2043                | 4822 124 12084 | 1µF 20% 50V             |
| 2044                | 2252 053 63221 | 220pF 10% 200V 0805     |
| 2045                | 2252 053 63221 | 220pF 10% 200V 0805     |
| 2046                | 2252 568 08305 | 33pF 5% 500V            |
| 2047                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2048                | 2020 552 96683 | 220nF 10% 50V           |
| 2049                | 2238 867 18101 | 100pF 1% 50V 0603       |
| 2050                | 2238 586 15641 | 22nF 10% 50V 0603       |
| 2051                | 5322 126 11583 | 10nF 10% 50V 0603       |
| 2052                | 4822 124 12056 | 1000µF 20% 35V          |
| 2053                | 2022 031 00308 | 22µF 20% 35V            |
| 2054                | 2238 869 15221 | 220pF 1% 50V 0402       |
| 2055                | 2020 552 96621 | 1.5nF 10% 50V 0402      |
| 2056                | 2238 869 15221 | 220pF 1% 50V 0402       |
| 2057                | 2020 552 96621 | 1.5nF 10% 50V 0402      |
| 2058                | 4822 124 41828 | 1µF 20% 250V            |
| 2059                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2060                | 2020 552 96683 | 220nF 10% 50V           |
| 2061                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2062                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2071                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2090                | 3198 030 74780 | 4u7 20% 35V             |
| 2112                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2113                | 4822 124 12379 | 220µF 25V               |
| 2114                | 2020 552 96683 | 220nF 10% 50V           |
| 2118                | 4822 126 13449 | 1nF 10% 2kV             |
| 2121                | 2020 024 90736 | 2200µF 20% 100V         |
| 2122                | 4822 121 51319 | 1µF 10% 63V             |
| 2123                | 3198 035 03320 | 3.3nF 5% 50V 0402       |
| 2126                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2133                | 4822 124 81151 | 22µF 50V                |
| 2203                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2205                | 3198 030 74780 | 4u7 20% 35V             |
| 2210                | 4822 124 80151 | 47µF 16V                |
| 2211                | 3198 035 04710 | 470pF 50V 0402          |
| 2212                | 2020 552 96326 | 220nF 10% 16V           |
| 2213                | 3198 035 03320 | 3.3nF 5% 50V 0402       |
| 2214                | 3198 035 03320 | 3.3nF 5% 50V 0402       |
| 2215                | 3198 035 04710 | 470pF 50V 0402          |
| 2217                | 2222 780 15656 | 330nF 10% 16V           |
| 2218                | 2222 375 90141 | 3.3nF 1.6kV 5%          |
| 2222                | 2238 869 15101 | 100pF 5% 50V 0402       |
| 2223                | 2238 869 15101 | 100pF 5% 50V 0402       |
| 2225                | 2020 021 91551 | 2200µF 20% 25V          |
| 2226                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2227                | 2238 869 15101 | 100pF 5% 50V 0402       |
| 2229                | 2020 021 00036 | 470µF 20% 16V           |
| 2230                | 2020 021 00036 | 470µF 20% 16V           |
| 2232                | 2238 869 15101 | 100pF 5% 50V 0402       |
| 2236                | 4822 124 23002 | 10µF 16V                |
| 2237                | 4822 124 23002 | 10µF 16V                |
| 2273                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2274                | 2020 552 96628 | 10nF 10% 16V 0402       |
| 2304                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2305                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2306                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2307                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2310                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2322                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2350                | 4822 124 12095 | 100µF 20% 16V           |
| 2352                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2366                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2376                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2377                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2381                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2397                | 4822 124 12095 | 100µF 20% 16V           |
| 2398                | 4822 124 23002 | 10µF 16V                |
| 2400▲               | 2222 338 22474 | 470nF 20% 275V          |
| 2401▲               | 2222 338 22474 | 470nF 20% 275V          |
| 2404                | 4822 126 14525 | 47pF 5% 1kV             |
| 2405                | 2022 554 04155 | 470pF 20% 250V          |
| 2406                | 4822 126 14525 | 47pF 5% 1kV             |
| 2407                | 2022 554 04155 | 470pF 20% 250V          |
| 2465                | 4822 124 12095 | 100µF 20% 16V           |
| 2501                | 3198 035 06810 | 680pF 5% 50V 0402       |
| 2502                | 3198 035 06810 | 680pF 5% 50V 0402       |
| 2503                | 2020 024 90708 | 47µF 400V 20%           |
| 2504                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2505                | 3198 026 51020 | 1000µF 50V              |
| 2506                | 3198 035 06810 | 680pF 5% 50V 0402       |
| 2507                | 3198 035 06810 | 680pF 5% 50V 0402       |
| 2513                | 2222 580 15649 | 100nF 10% 50V 0805      |
| 2532                | 4822 124 12095 | 100µF 20% 16V           |
| 2533                | 4822 124 12095 | 100µF 20% 16V           |
| 2540                | 4822 124 12095 | 100µF 20% 16V           |
| 2541                | 4822 124 12095 | 100µF 20% 16V           |
| 2542                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2600                | 4822 122 33799 | 1nF 10% 1kV             |
| 2601                | 4822 122 33799 | 1nF 10% 1kV             |
| 2602                | 2020 552 96623 | 2.2nF 10% 50V 0402      |
| 2603                | 2222 383 90136 | 1µF 5% 400V             |
| 2605                | 2222 383 90136 | 1µF 5% 400V             |
| 2608                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2610                | 4822 121 70584 | 1.8nF 5% 2kV            |
| 2611                | 4822 126 12263 | 220pF 10% 2kV           |
| 2612                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2614                | 2020 552 96623 | 2.2nF 10% 50V 0402      |
| 2616                | 4822 124 12415 | 220µF 20% 400V          |
| 2617                | 4822 124 12415 | 220µF 20% 400V          |
| 2640                | 3198 035 04710 | 470pF 50V 0402          |
| 2642                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2651                | 2020 552 96628 | 10nF 10% 16V 0402       |
| 2653                | 3198 035 06810 | 680pF 5% 50V 0402       |
| 2654                | 4822 124 80151 | 47µF 16V                |
| 2655                | 2022 552 05679 | 1µF 10% 16V 0805        |
| 2656                | 2222 580 15649 | 100nF 10% 50V 0805      |
| 2660                | 4822 126 13881 | 470pF 5% 50V            |
| 2661                | 2020 552 96618 | 1nF 10% 50V 0402        |
| 2662                | 4822 124 80061 | 1000µF 20% 25V          |
| 2663                | 4822 121 51319 | 1µF 10% 63V             |
| 2664                | 4822 124 40255 | 100µF 20% 63V           |
| 2665                | 4822 126 13881 | 470pF 5% 50V            |
| 2666                | 2020 552 96793 | 4.7nF 10% 50V 0402      |
| 2670                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2671                | 2238 586 59812 | 100nF 20% 50V 0603      |
| 2672                | 2222 580 15649 | 100nF 10% 50V 0805      |
| 2673                | 2020 558 00005 | 10nF 10% 630V 1206      |
| 2674                | 2020 558 00005 | 10nF 10% 630V 1206      |
| 2675                | 2020 558 00005 | 10nF 10% 630V 1206      |
| 2676                | 2020 558 00005 | 10nF 10% 630V 1206      |
| 2677                | 2020 552 96623 | 2.2nF 10% 50V 0402      |
| 2690                | 2020 552 96618 | 1nF 10% 50V 0402        |
|                     |                |                         |
| —W—                 |                |                         |
| 3001                | 4822 051 30471 | 47Ω 5% 0.062W           |
| 3002                | 4822 051 30471 | 47Ω 5% 0.062W           |
| 3003                | 4822 117 11297 | 100kΩ 5% 0.1W           |
| 3004                | 3198 031 01530 | 15kΩ 5% 0.01W 0402      |
| 3005                | 3198 031 02730 | 27kΩ 5% 0402            |
| 3006                | 4822 117 13606 | 10kΩ 5% 0.01W 0402      |
| 3007                | 3198 031 04720 | 4.7kΩ 5% 0402           |
| 3008                | 4822 051 30102 | 1kΩ 5% 0.062W           |
| 3009                | 4822 051 30102 | 1kΩ 5% 0.062W           |
| 3010                | 3198 031 01530 | 15kΩ 5% 0.01W 0402      |
| 3011                | 4822 051 30561 | 560Ω 5% 0.062W          |
| 3012                | 3198 031 04720 | 4.7kΩ 5% 0402           |
| 3013                | 4822 117 13606 | 10kΩ 5% 0.01W 0402      |
| 3014                | 4822 050 23309 | 33Ω 1% 0.6W             |
| 3015                | 4822 050 21009 | 10Ω 1% 0.6W             |
| 3016                | 4822 051 20471 | 470Ω 5% 0.1W            |
| 3017                | 4822 050 23309 | 33Ω 1% 0.6W             |
| 3018                | 4822 050 21009 | 10Ω 1% 0.6W             |
| 3019                | 4822 051 20471 | 470Ω 5% 0.1W            |
| 3020                | 3198 031 05630 | 56kΩ 5% 0402            |
| 3022                | 4822 051 30331 | 330Ω 5% 0.062W          |
| 3023                | 3198 031 04730 | 47Ω 5% 0402             |
| 3024                | 2322 706 76803 | 68kΩ 5% 0402            |
| 3025                | 2322 706 71802 | 1.8kΩ 5% 0402           |
| 3027                | 3198 031 04730 | 47Ω 5% 0402             |
| 3028                | 2322 704 67502 | 7.5kΩ 1% 0.5W           |
| 3029                | 4822 051 30123 | 12kΩ 5% 0.1W            |
|                     |                |                         |

|       |                |                      |       |                |                     |       |                |                     |
|-------|----------------|----------------------|-------|----------------|---------------------|-------|----------------|---------------------|
| 3031  | 2322 706 71003 | 10kΩ 5% 0402         | 3132  | 4822 117 13596 | 220Ω 5% 0.01W 0402  | 3377  | 3198 031 05620 | 5.6kΩ 5% 0.01W 0402 |
| 3032  | 2322 706 71003 | 10kΩ 5% 0402         | 3133  | 4822 051 30101 | 100Ω 5% 0.062W      | 3380  | 3198 031 04730 | 47Ω 5% 0402         |
| 3033  | 2322 705 70184 | 180Ω 5% 0402         | 3134  | 4822 051 30331 | 330Ω 5% 0.062W      | 3381  | 3198 031 04730 | 47Ω 5% 0402         |
| 3034  | 4822 117 13596 | 220Ω 5% 0.01W 0402   | 3135  | 3198 031 04730 | 47Ω 5% 0402         | 3383  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3035  | 4822 051 20684 | 680kΩ 5% 0.1W        | 3136  | 3198 031 04730 | 47Ω 5% 0402         | 3384  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3036  | 2122 612 00068 | NTC 1Ω 20% 6W        | 3137  | 2322 706 77503 | 75kΩ 1% 0402        | 3389  | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 3037  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3138  | 2322 706 77503 | 75kΩ 1% 0402        | 3391  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3038  | 4822 117 11297 | 100kΩ 5% 0.1W        | 3143  | 4822 053 12472 | 4.7kΩ 5% 3W         | 3398  | 4822 117 13548 | 1kΩ 5% 0402         |
| 3039  | 4822 051 30105 | 1MΩ 5% 0.062W        | 3147  | 2322 706 71003 | 10kΩ 5% 0402        | 3400▲ | 2122 550 00158 | VDR 1mA 612V        |
| 3040  | 4822 117 10837 | 100kΩ 1% 0.1W        | 3149▲ | 4822 052 10478 | 4.7Ω 5% 0.33W       | 3401▲ | 4822 117 10118 | 1MΩ 5% 0.5W         |
| 3041  | 4822 117 13603 | 33kΩ 5% 0402         | 3150  | 3198 031 01050 | 1MΩ 5% 0402         | 3402  | 4822 116 83872 | 220Ω 5% 0.5W        |
| 3042  | 4822 051 30471 | 47Ω 5% 0.062W        | 3200  | 4822 051 20334 | 330kΩ 5% 0.1W       | 3404  | 4822 116 83872 | 220Ω 5% 0.5W        |
| 3043  | 3198 031 04720 | 4.7kΩ 5% 0402        | 3201  | 4822 051 30101 | 100Ω 5% 0.062W      | 3450▲ | 2322 662 93131 | PTC 10Ω             |
| 3044  | 4822 051 30102 | 1kΩ 5% 0.062W        | 3202  | 4822 051 30101 | 100Ω 5% 0.062W      | 3451▲ | 2322 662 93131 | PTC 10Ω             |
| 3045  | 4822 051 30102 | 1kΩ 5% 0.062W        | 3203  | 4822 051 30101 | 100Ω 5% 0.062W      | 3452  | 2122 612 00068 | NTC 1Ω 20% 6W       |
| 3046  | 4822 053 20565 | 5.6MΩ 5% 0.25W       | 3204  | 4822 117 11297 | 100kΩ 5% 0.1W       | 3460  | 3198 031 01520 | 1.2kΩ 5% 0.01W 0402 |
| 3047  | 3198 031 01540 | 150kΩ 5% 0402        | 3205  | 3198 031 01540 | 150kΩ 5% 0402       | 3461  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3048  | 3198 031 04720 | 4.7kΩ 5% 0402        | 3206  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805  | 3463  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3049  | 3198 031 01230 | 12kΩ 5% 0402         | 3207  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805  | 3465  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3050▲ | 4822 052 10398 | 3.9Ω 5% 0.33W        | 3208  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805  | 3467  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3051  | 4822 051 20822 | 8.2kΩ 5% 0.1W        | 3209  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805  | 3469  | 3198 031 03320 | 3.3kΩ 5% 0402       |
| 3052  | 2322 706 76803 | 68kΩ 5% 0402         | 3210  | 2322 706 71002 | 1kΩ 1% 0402         | 3470  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3053▲ | 2322 662 93131 | PTC 10Ω              | 3212  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3506▲ | 2322 662 93131 | PTC 10Ω             |
| 3054  | 4822 117 13543 | 470Ω 5% 0402         | 3213  | 4822 117 13603 | 33kΩ 5% 0402        | 3507  | 4822 051 20684 | 680kΩ 5% 0.1W       |
| 3055  | 4822 117 10833 | 10kΩ 1% 0.1W         | 3214  | 2322 705 70124 | 120kΩ 5% 0402       | 3510  | 4822 117 13543 | 470Ω 5% 0402        |
| 3056  | 4822 051 30331 | 330Ω 5% 0.062W       | 3215  | 2322 705 70274 | 270kΩ 5% 0402       | 3511  | 4822 117 13543 | 470Ω 5% 0402        |
| 3057  | 4822 051 30101 | 100Ω 5% 0.062W       | 3216  | 4822 117 13548 | 1kΩ 5% 0402         | 3512  | 3198 031 05610 | 560Ω 5% 0.01W 0402  |
| 3058  | 4822 051 20105 | 1MΩ 5% 0.1W          | 3217  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3513  | 3198 031 05610 | 560Ω 5% 0.01W 0402  |
| 3059  | 3198 031 05630 | 56kΩ 5% 0402         | 3218  | 2122 118 06084 | 0.051Ω 5% 1W 2512   | 3514  | 4822 117 13545 | 100Ω 1% 0402        |
| 3060  | 4822 050 22204 | 220kΩ 1% 0.6W        | 3219  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3515  | 4822 117 13548 | 1kΩ 5% 0402         |
| 3061  | 3198 031 01830 | 18kΩ 5% 0.01W 0402   | 3220  | 4822 050 23309 | 33Ω 1% 0.6W         | 3516  | 4822 117 13548 | 1kΩ 5% 0402         |
| 3062  | 4822 117 13548 | 1kΩ 5% 0402          | 3224  | 2322 706 71203 | 12kΩ 5% 0402        | 3517  | 4822 050 21009 | 10Ω 1% 0.6W         |
| 3063  | 4822 117 13548 | 1kΩ 5% 0402          | 3225  | 2322 706 71003 | 10kΩ 5% 0402        | 3603  | 4822 051 20474 | 470kΩ 5% 0.1W       |
| 3064  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3226  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3604  | 4822 051 20474 | 470kΩ 5% 0.1W       |
| 3065  | 4822 117 13548 | 1kΩ 5% 0402          | 3228  | 4822 051 30151 | 150Ω 5% 0.062W      | 3605  | 4822 051 20474 | 470kΩ 5% 0.1W       |
| 3066  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3229  | 3198 031 05610 | 560Ω 5% 0.01W 0402  | 3606  | 4822 051 30101 | 100Ω 5% 0.062W      |
| 3067  | 3198 031 01530 | 15kΩ 5% 0.01W 0402   | 3230  | 4822 051 30331 | 330Ω 5% 0.062W      | 3607  | 4822 117 12891 | 220kΩ 1%            |
| 3068  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3231  | 4822 051 30331 | 330Ω 5% 0.062W      | 3608  | 2312 915 11209 | 12Ω 1% 0.5W         |
| 3069  | 4822 051 30471 | 47Ω 5% 0.062W        | 3235  | 4822 050 24701 | 470Ω 1% 0.6W        | 3609  | 4822 051 20474 | 470kΩ 5% 0.1W       |
| 3070  | 4822 051 30103 | 10kΩ 5% 0.062W       | 3236  | 4822 050 21501 | 150Ω 1% 0.6W        | 3610  | 4822 050 23308 | 3.3Ω 1% 0.6W        |
| 3071  | 3198 031 04730 | 47Ω 5% 0402          | 3237  | 4822 050 21501 | 150Ω 1% 0.6W        | 3611  | 4822 050 21003 | 10kΩ 1% 0.6W        |
| 3073  | 3198 031 01050 | 1MΩ 5% 0402          | 3290  | 4822 051 30331 | 330Ω 5% 0.062W      | 3613  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3074  | 3198 031 03340 | 330kΩ 5% 0402        | 3291  | 4822 051 30331 | 330Ω 5% 0.062W      | 3614  | 2322 194 95001 | 0.27Ω 5% 2W         |
| 3075  | 4822 051 20105 | 1MΩ 5% 0.1W          | 3293  | 4822 051 20561 | 560Ω 5% 0.1W        | 3615  | 2322 194 95001 | 0.27Ω 5% 2W         |
| 3076  | 4822 117 11297 | 100kΩ 5% 0.1W        | 3294  | 4822 051 20561 | 560Ω 5% 0.1W        | 3616  | 3198 031 01230 | 12kΩ 5% 0402        |
| 3077  | 4822 051 20105 | 1MΩ 5% 0.1W          | 3300  | 2322 706 72204 | 220kΩ 5% 0402       | 3617  | 3198 031 04730 | 47Ω 5% 0402         |
| 3078  | 4822 117 11297 | 100kΩ 5% 0.1W        | 3301  | 2322 706 72204 | 220kΩ 5% 0402       | 3618  | 4822 117 13603 | 33kΩ 5% 0402        |
| 3079  | 4822 051 30331 | 330Ω 5% 0.062W       | 3304  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3619  | 3198 031 03320 | 3.3kΩ 5% 0402       |
| 3080  | 4822 051 30331 | 330Ω 5% 0.062W       | 3306  | 2322 706 71003 | 10kΩ 5% 0402        | 3620  | 2322 194 95001 | 0.27Ω 5% 2W         |
| 3083  | 2312 915 11002 | 1kΩ 1% 0.5W          | 3307  | 2322 706 71203 | 12kΩ 5% 0402        | 3621  | 4822 050 22208 | 2.2Ω 1% 0.6W        |
| 3084  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3308  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3622  | 4822 050 22208 | 2.2Ω 1% 0.6W        |
| 3085  | 3198 031 04730 | 47Ω 5% 0402          | 3310  | 2322 706 71004 | 100kΩ 1% 0402       | 3623  | 4822 117 13548 | 1kΩ 5% 0402         |
| 3086  | 3198 031 04730 | 47Ω 5% 0402          | 3311  | 2322 706 71204 | 120kΩ 5% 0402       | 3639  | 4822 051 10102 | 1kΩ 2% 0.25W        |
| 3087  | 3198 031 04730 | 47Ω 5% 0402          | 3312  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3640  | 4822 117 13543 | 470Ω 5% 0402        |
| 3088  | 3198 031 04730 | 47Ω 5% 0402          | 3313  | 2322 704 67502 | 7.5kΩ 1% 0.5W       | 3641  | 4822 051 20471 | 470Ω 5% 0.1W        |
| 3090  | 4822 117 13545 | 100Ω 1% 0402         | 3314  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3642  | 4822 117 11503 | 220Ω 1% 0.1W        |
| 3091  | 4822 051 30102 | 1kΩ 5% 0.062W        | 3315  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3643  | 4822 117 11503 | 220Ω 1% 0.1W        |
| 3092  | 4822 051 10102 | 1kΩ 2% 0.25W         | 3317  | 2322 704 67502 | 7.5kΩ 1% 0.5W       | 3645  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3093  | 4822 117 13548 | 1kΩ 5% 0402          | 3318  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3646  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3094  | 4822 051 10102 | 1kΩ 2% 0.25W         | 3320  | 2322 706 71003 | 10kΩ 5% 0402        | 3647  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3095  | 4822 117 13543 | 470Ω 5% 0402         | 3321  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3648  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3096  | 3198 031 05620 | 5.6kΩ 5% 0.01W 0402  | 3322  | 2322 706 73902 | 3.9kΩ 1% 0402       | 3651  | 4822 117 13601 | 22kΩ 5% 0402        |
| 3097  | 3198 031 08210 | 820Ω 5% 0.5W         | 3323  | 2322 706 71003 | 10kΩ 5% 0402        | 3652  | 3198 031 01050 | 1MΩ 5% 0402         |
| 3098  | 4822 117 13548 | 1kΩ 5% 0402          | 3324  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3654  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3100  | 2322 706 71002 | 1kΩ 1% 0402          | 3333  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3655  | 4822 117 13548 | 1kΩ 5% 0402         |
| 3101  | 2322 706 71002 | 1kΩ 1% 0402          | 3334  | 4822 117 13545 | 100Ω 1% 0402        | 3656  | 3198 031 01820 | 1.8kΩ 5% 0.01W 0402 |
| 3102  | 2322 706 71002 | 1kΩ 1% 0402          | 3335  | 4822 117 13545 | 100Ω 1% 0402        | 3659  | 4822 117 11503 | 220Ω 1% 0.1W        |
| 3103  | 2322 706 71002 | 1kΩ 1% 0402          | 3338  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3660  | 4822 117 11504 | 270Ω 1% 0.1W        |
| 3104  | 2322 706 71002 | 1kΩ 1% 0402          | 3339  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3661  | 4822 117 11504 | 270Ω 1% 0.1W        |
| 3106  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805   | 3341  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3663▲ | 4822 052 10108 | 1Ω 5% 0.33W         |
| 3107  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805   | 3342  | 4822 051 30103 | 10kΩ 5% 0.062W      | 3664  | 2322 706 72204 | 220kΩ 5% 0402       |
| 3108  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805   | 3343  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3665  | 2322 705 70274 | 270kΩ 5% 0402       |
| 3109  | 4822 117 12955 | 2.7kΩ 1% 0.1W 0805   | 3344  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3666  | 4822 051 30101 | 100Ω 5% 0.062W      |
| 3110  | 4822 117 13548 | 1kΩ 5% 0402          | 3345  | 4822 117 13548 | 1kΩ 5% 0402         | 3668▲ | 4822 052 11102 | 1kΩ 5% 0.5W         |
| 3112  | 4822 051 30102 | 1kΩ 5% 0.062W        | 3346  | 4822 117 13548 | 1kΩ 5% 0402         | 3669  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3113  | 3198 031 04740 | 470kΩ 5% 0402        | 3347  | 4822 051 30331 | 330Ω 5% 0.062W      | 3671  | 2322 706 71003 | 10kΩ 5% 0402        |
| 3114  | 2322 705 70564 | 560kΩ 5% 0402        | 3348  | 4822 051 30331 | 330Ω 5% 0.062W      | 3673▲ | 4822 052 11102 | 1kΩ 5% 0.5W         |
| 3115  | 3198 031 02240 | 220kΩ 5% 0.1W 0402   | 3349  | 4822 051 30102 | 1kΩ 5% 0.062W       | 3674  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3116  | 4822 117 13548 | 1kΩ 5% 0402          | 3350  | 4822 051 30472 | 4.7Ω 5% 0.062W      | 3675  | 2322 702 60158 | 1.5Ω                |
| 3117  | 4822 117 13606 | 10kΩ 5% 0.01W 0402   | 3351  | 4822 051 30103 | 10kΩ 5% 0.062W      | 3676  | 2322 706 74702 | 4.7kΩ 5% 0402       |
| 3118  | 2122 118 06084 | 0.051Ω 5% 1W 2512    | 3352  | 4822 051 30103 | 10kΩ 5% 0.062W      | 3677  | 2322 706 74703 | 47kΩ 1% 0402        |
| 3119  | 2322 706 77503 | 75kΩ 1% 0402         | 3353  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3678  | 3198 031 04730 | 47Ω 5% 0402         |
| 3120  | 3198 021 31820 | 1.8kΩ 5% 0.062W 0603 | 3354  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3679  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3121  | 3198 031 04730 | 47Ω 5% 0402          | 3356  | 3198 031 05610 | 560Ω 5% 0.01W 0402  | 3680  | 2322 706 76803 | 68kΩ 5% 0402        |
| 3122  | 2322 706 77503 | 75kΩ 1% 0402         | 3359  | 3198 031 05620 | 5.6kΩ 5% 0.01W 0402 | 3681  | 2322 706 76803 | 68                  |

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| 3694 | 2322 706 76803 | 68kΩ 5% 0402       | 6313  | 4822 130 80622 | BAT54       | 7351 | 3198 010 42310 | BC847BW    |
| 3695 | 2322 706 76803 | 68kΩ 5% 0402       | 6321  | 4822 130 80622 | BAT54       | 7352 | 3198 010 42310 | BC847BW    |
| 3696 | 2322 706 76803 | 68kΩ 5% 0402       | 6322  | 4822 130 80622 | BAT54       | 7366 | 9322 185 74668 | LM324P     |
| 3806 | 4822 117 13543 | 470Ω 5% 0402       | 6333  | 4822 130 80622 | BAT54       | 7375 | 3198 010 42310 | BC847BW    |
| 3807 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 6334  | 4822 130 80622 | BAT54       | 7376 | 3198 010 42310 | BC847BW    |
| 3808 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 6335  | 4822 130 11397 | BAS316      | 7391 | 3198 010 42320 | BC857BW    |
| 3809 | 4822 117 13603 | 33kΩ 5% 0402       | 6344  | 4822 130 10838 | UDZ3.3B     | 7460 | 9340 219 30115 | BC817-25W  |
| 3811 | 4822 117 13545 | 100Ω 1% 0402       | 6347  | 4822 130 80622 | BAT54       | 7462 | 3198 010 42310 | BC847BW    |
| 3999 | 4822 117 13548 | 1kΩ 5% 0402        | 6365  | 4822 130 11397 | BAS316      | 7465 | 3198 010 42320 | BC857BW    |
| 9011 | 4822 117 13605 | Jumper 0402        | 6366  | 4822 130 11397 | BAS316      | 7470 | 9340 219 30115 | BC817-25W  |
| 9021 | 4822 117 13605 | Jumper 0402        | 6375  | 4822 130 11397 | BAS316      | 7500 | 9322 037 99682 | TNY256P    |
| 9022 | 4822 117 13605 | Jumper 0402        | 6376  | 4822 130 11397 | BAS316      | 7540 | 4822 209 17398 | LD1117DT33 |
| 9029 | 4822 117 13605 | Jumper 0402        | 6460  | 4822 130 11397 | BAS316      | 7601 | 3198 010 42310 | BC847BW    |
|      |                |                    | 6461  | 4822 130 11397 | BAS316      | 7602 | 3198 010 42320 | BC857BW    |
|      |                |                    | 6470  | 4822 130 11397 | BAS316      | 7609 | 4822 130 60142 | BC869      |
|      |                |                    | 6471  | 4822 130 11397 | BAS316      | 7610 | 9322 223 21687 | STW29NK50Z |
|      |                |                    | 6501  | 9322 218 64673 | BZT03C200   | 7640 | 9340 560 35235 | BSH112     |
|      |                |                    | 6502  | 9322 218 64673 | BZT03C200   | 7641 | 9340 219 30115 | BC817-25W  |
|      |                |                    | 6503  | 9322 176 76668 | RS1J        | 7650 | 9322 130 69682 | MC33368P   |
|      |                |                    | 6506  | 9322 218 64673 | BZT03C200   | 7654 | 3198 010 42320 | BC857BW    |
|      |                |                    | 6507  | 9322 155 79685 | EC31QS04    | 7655 | 3198 010 42310 | BC847BW    |
|      |                |                    | 6508  | 9322 128 69685 | S1D         | 7656 | 3198 010 42310 | BC847BW    |
|      |                |                    | 6509  | 9340 548 67115 | PDZ22B      | 7661 | 5322 209 90529 | MC34063AD  |
|      |                |                    | 6510  | 9322 099 61685 | BYG10J      |      |                |            |
|      |                |                    | 6511  | 9322 099 61685 | BYG10J      |      |                |            |
|      |                |                    | 6600▲ | 9322 177 84667 | GBU8JL-7014 |      |                |            |
|      |                |                    | 6601  | 9322 150 17685 | BZX384-C39  |      |                |            |
|      |                |                    | 6602  | 4822 130 11522 | UDZ15B      |      |                |            |
|      |                |                    | 6605  | 9322 192 15668 | SM S3J      |      |                |            |
|      |                |                    | 6606  | 9322 192 15668 | SM S3J      |      |                |            |
|      |                |                    | 6608  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6609  | 9322 208 81685 | BZG05C18    |      |                |            |
|      |                |                    | 6611  | 9322 205 89687 | FESF8JT-E3  |      |                |            |
|      |                |                    | 6640  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6641  | 4822 130 11397 | BAS316      |      |                |            |
|      |                |                    | 6642  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6643  | 4822 130 11152 | UDZ18B      |      |                |            |
|      |                |                    | 6651  | 4822 130 80622 | BAT54       |      |                |            |
|      |                |                    | 6652  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6653  | 4822 130 10837 | UDZS8.2B    |      |                |            |
|      |                |                    | 6654  | 4822 130 11397 | BAS316      |      |                |            |
|      |                |                    | 6660  | 9322 202 55685 | BYG22D      |      |                |            |
|      |                |                    | 6661  | 9322 202 55685 | BYG22D      |      |                |            |
|      |                |                    | 6663  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6665  | 9322 128 70685 | SMSS14      |      |                |            |
|      |                |                    | 6666  | 4822 130 10837 | UDZS8.2B    |      |                |            |
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|------|----------------|---------------------|
| 3030 | 4822 051 30472 | 4.7Ω 5% 0.062W      |
| 3031 | 4822 051 30472 | 4.7Ω 5% 0.062W      |
| 3032 | 4822 053 20105 | 1MΩ 5% 0.25W        |
| 3034 | 4822 051 30479 | 47Ω 5% 0.062W       |
| 3035 | 4822 051 30479 | 47Ω 5% 0.062W       |
| 3036 | 4822 051 30479 | 47Ω 5% 0.062W       |
| 3037 | 4822 051 30561 | 560Ω 5% 0.062W      |
| 3038 | 4822 051 30561 | 560Ω 5% 0.062W      |
| 3039 | 4822 051 30103 | 10kΩ 5% 0.062W      |
| 3041 | 4822 051 30221 | 220Ω 5% 0.062W      |
| 3135 | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 3136 | 4822 117 12925 | 47kΩ 1% 0.063W 0603 |



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|------|----------------|------------------|
| 5002 | 2422 536 00923 | 22μH 10% LHL10   |
| 5007 | 2422 536 00923 | 22μH 10% LHL10   |
| 5008 | 2422 536 00923 | 22μH 10% LHL10   |
| 5011 | 2422 549 42896 | Bead 120Ω 100MHz |
| 5014 | 2422 531 00128 | BD21506-01       |
| 5015 | 2422 531 00128 | BD21506-01       |
| 5016 | 2422 531 00128 | BD21506-01       |



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|------|----------------|---------|
| 6000 | 4822 130 11397 | BAS316  |
| 6001 | 4822 130 11397 | BAS316  |
| 6002 | 4822 130 11397 | BAS316  |
| 6003 | 4822 130 11397 | BAS316  |
| 6004 | 4822 130 11397 | BAS316  |
| 6005 | 4822 130 11397 | BAS316  |
| 6006 | 4822 130 11152 | UDZ18B  |
| 6007 | 4822 130 11152 | UDZ18B  |
| 6008 | 4822 130 11152 | UDZ18B  |
| 6009 | 4822 130 11152 | UDZ18B  |
| 6010 | 4822 130 11152 | UDZ18B  |
| 6011 | 4822 130 11152 | UDZ18B  |
| 6014 | 4822 130 11522 | UDZ15B  |
| 6015 | 4822 130 11397 | BAS316  |
| 6016 | 4822 130 11397 | BAS316  |
| 6017 | 4822 130 11397 | BAS316  |
| 6018 | 4822 130 11397 | BAS316  |
| 6019 | 4822 130 11397 | BAS316  |
| 6020 | 4822 130 11397 | BAS316  |
| 6112 | 4822 130 11148 | UDZ4.7B |



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|------|----------------|-----------------|
| 7002 | 9322 202 58668 | LD1117DT50      |
| 7003 |                | For SW See 0801 |
| 7009 | 3198 010 42310 | BC847BW         |
| 7010 | 3198 010 42310 | BC847BW         |
| 7011 | 3198 010 42310 | BC847BW         |
| 7015 | 9322 214 20668 | SI4946EY        |
| 7016 | 9322 214 20668 | SI4946EY        |
| 7017 | 9322 214 20668 | SI4946EY        |
| 7018 | 3198 010 42310 | BC847BW         |
| 7019 | 3198 010 42310 | BC847BW         |
| 7020 | 3198 010 42310 | BC847BW         |

## Platform Supply [AP]

### Various

|       |                |                  |
|-------|----------------|------------------|
| 0041  | 4822 492 62076 | Transistor clamp |
| 0055  | 4822 492 62076 | Transistor clamp |
| 0056  | 4822 492 62076 | Transistor clamp |
| 0057  | 4822 492 62076 | Transistor clamp |
| 0058  | 4822 492 62076 | Transistor clamp |
| 0059  | 4822 492 62076 | Transistor clamp |
| 0060  | 4822 492 62076 | Transistor clamp |
| 0061  | 3104 304 90361 | Insulating plate |
| 0062  | 3104 304 90361 | Insulating plate |
| 1M02  | 2422 025 11244 | Connector 7p m   |
| 1M03  | 2422 025 10771 | Connector 10p m  |
| 1M18  | 2422 025 09406 | Connector 4p m   |
| 1M46  | 2422 025 10655 | Connector 11p m  |
| 1P02  | 4822 265 20723 | Connector 2p     |
| 1P03▲ | 2422 086 00648 | Fuse 1A T 250V   |
| 1P06▲ | 2422 086 00678 | Fuse 5A T 250V   |
| 1P07▲ | 2422 086 00678 | Fuse 5A T 250V   |
| 1P10  | 4822 267 10557 | Connector 10p    |
| 1P22  | 2422 025 16374 | Connector 2p m   |
| 1P30▲ | 2422 086 00663 | Fuse 1A T 250V   |



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|------|----------------|------------------|
| 2P01 | 2022 552 05679 | 1μF 10% 16V 0805 |
| 2P03 | 2022 552 05679 | 1μF 10% 16V 0805 |
| 2P04 | 2022 552 05679 | 1μF 10% 16V 0805 |

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|-------|----------------|---------------------|
| 2P05  | 4822 124 81151 | 22μF 50V            |
| 2P06▲ | 2022 554 04154 | 220pF 10% 250V      |
| 2P11  | 2022 552 05679 | 1μF 10% 16V 0805    |
| 2P12  | 2238 586 59812 | 100nF 20% 50V 0603  |
| 2P14  | 4822 121 70162 | 10nF 5% 400V        |
| 2P22  | 2020 552 96683 | 220nF 10% 50V       |
| 2P23  | 3198 016 31020 | 1nF 25V 0603        |
| 2P24  | 2022 552 05679 | 1μF 10% 16V 0805    |
| 2P25  | 2238 930 11541 | 220pF 5% 200V       |
| 2P26  | 2020 552 96683 | 220nF 10% 50V       |
| 2P27  | 3198 038 41020 | 1000μF 20% 35V      |
| 2P28  | 3198 038 41020 | 1000μF 20% 35V      |
| 2P29  | 3198 038 41020 | 1000μF 20% 35V      |
| 2P30  | 3198 038 41020 | 1000μF 20% 35V      |
| 2P33  | 3198 017 34730 | 47nF 16V 0603       |
| 2P34  | 2020 552 96683 | 220nF 10% 50V       |
| 2P35  | 2020 552 96683 | 220nF 10% 50V       |
| 2P37  | 2238 586 59812 | 100nF 20% 50V 0603  |
| 2P40  | 2238 586 59812 | 100nF 20% 50V 0603  |
| 2P42  | 2238 930 11541 | 220pF 5% 200V       |
| 2P43  | 2238 930 11541 | 220pF 5% 200V       |
| 2P45  | 2238 586 59812 | 100nF 20% 50V 0603  |
| 2P47  | 4822 124 80061 | 1000μF 20% 25V      |
| 2P48  | 4822 124 80061 | 1000μF 20% 25V      |
| 2P49  | 4822 124 80061 | 1000μF 20% 25V      |
| 2P50  | 4822 124 80061 | 1000μF 20% 25V      |
| 2P51  | 5322 126 11583 | 10nF 10% 50V 0603   |
| 2P52  | 4822 121 70162 | 10nF 5% 400V        |
| 2P53  | 2020 552 94427 | 100pF 5% 50V        |
| 2P57  | 2020 552 96683 | 220nF 10% 50V       |
| 2P64  | 2238 930 11541 | 220pF 5% 200V       |
| 2P80  | 2020 552 96683 | 220nF 10% 50V       |
| 2S04  | 4822 126 13682 | 100pF 5% 1kV        |
| 2S06▲ | 2022 554 04154 | 220pF 10% 250V      |
| 2S07  | 3198 017 34730 | 47nF 16V 0603       |
| 2S13  | 2222 930 56627 | 2.2nF 10% 200V 0805 |
| 2S14  | 4822 124 12379 | 220μF 25V           |
| 2S15  | 2022 552 05679 | 1μF 10% 16V 0805    |
| 2S16  | 4822 124 81151 | 22μF 50V            |
| 2S17  | 4822 124 81151 | 22μF 50V            |
| 2S18  | 3198 017 34730 | 47nF 16V 0603       |
| 2S33  | 4822 124 40207 | 100μF 20% 25V       |
| 2S39  | 2022 552 05679 | 1μF 10% 16V 0805    |
| 2S40  | 4822 121 70162 | 10nF 5% 400V        |
| 2S41  | 2020 552 96683 | 220nF 10% 50V       |
| 2S50  | 2020 021 91668 | 2200μF 20% 10V      |
| 2S52  | 4822 121 70162 | 10nF 5% 400V        |
| 2S54  | 3198 017 31530 | 15nF 20% 50V 0603   |
| 2S56  | 2020 552 96683 | 220nF 10% 50V       |



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|------|----------------|-----------------------|
| 3999 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3P00 | 4822 117 10833 | 10kΩ 1% 0.1W          |
| 3P01 | 4822 117 10833 | 10kΩ 1% 0.1W          |
| 3P02 | 4822 117 10833 | 10kΩ 1% 0.1W          |
| 3P03 | 4822 117 10833 | 10kΩ 1% 0.1W          |
| 3P04 | 2322 734 63309 | 33Ω 1% 0.1W 0805      |
| 3P08 | 2322 193 14477 | 0.47Ω 5%              |
| 3P11 | 4822 117 13632 | 100kΩ 1% 0.0603 0.62W |
| 3P12 | 4822 051 30474 | 470kΩ 5% 0.062W       |
| 3P13 | 4822 117 12925 | 47kΩ 1% 0.063W 0603   |
| 3P14 | 4822 117 12925 | 47kΩ 1% 0.063W 0603   |
| 3P16 | 3198 021 34780 | 4.7Ω 5% 0.0603        |
| 3P19 | 4822 117 12891 | 220kΩ 1%              |
| 3P21 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P22 | 4822 051 30474 | 470kΩ 5% 0.062W       |
| 3P23 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3P24 | 4822 117 12891 | 220kΩ 1%              |
| 3P26 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P27 | 4822 051 30123 | 12kΩ 5% 0.1W          |
| 3P28 | 3198 012 24730 | 47kΩ 5%               |
| 3P29 | 4822 053 11471 | 470Ω 5% 2W            |
| 3P33 | 4822 051 30471 | 47Ω 5% 0.062W         |
| 3P36 | 4822 051 30471 | 47Ω 5% 0.062W         |
| 3P39 | 4822 117 12925 | 47kΩ 1% 0.063W 0603   |
| 3P40 | 4822 051 30683 | 68kΩ 5% 0.062W        |
| 3P42 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3P43 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3P47 | 4822 051 30472 | 4.7Ω 5% 0.062W        |
| 3P48 | 2322 734 63309 | 33Ω 1% 0.1W 0805      |
| 3P49 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P50 | 3198 021 32290 | 22Ω 5% 0.0603         |
| 3P51 | 4822 117 13632 | 100kΩ 1% 0.0603 0.62W |
| 3P52 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P53 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3P54 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P55 | 4822 051 30331 | 330Ω 5% 0.062W        |
| 3P59 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3P60 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P61 | 4822 051 30471 | 47Ω 5% 0.062W         |
| 3P62 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3P63 | 4822 051 30102 | 1kΩ 5% 0.062W         |

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| 3P64 | 4822 117 12925 | 47kΩ 1% 0.063W 0603   |
| 3P65 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3P66 | 5322 117 13046 | 1.8kΩ 1% 0.063W 0603  |
| 3P68 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3P69 | 4822 051 30334 | 330kΩ 5% 0.062W       |
| 3P73 | 4822 051 30333 | 33kΩ 5% 0.062W        |
| 3P74 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3P75 | 4822 051 30472 | 4.7Ω 5% 0.062W        |
| 3P76 | 4822 117 12891 | 220kΩ 1%              |
| 3P77 | 2322 193 14332 | 3.3kΩ 5% 1W           |
| 3P78 | 4822 051 30472 | 4.7Ω 5% 0.062W        |
| 3P79 | 4822 051 30272 | 2.7kΩ 5% 0.062W       |
| 3P80 | 4822 051 30272 | 2.7kΩ 5% 0.062W       |
| 3P81 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3P82 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3P83 | 4822 051 30332 | 3.3kΩ 5% 0.062W       |
| 3P84 | 4822 051 30332 | 3.3kΩ 5% 0.062W       |
| 3P85 | 4822 051 30272 | 2.7kΩ 5% 0.062W       |
| 3P86 | 4822 051 30331 | 330Ω 5% 0.062W        |
| 3P87 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3P88 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3P89 | 4822 051 30332 | 3.3kΩ 5% 0.062W       |
| 3P90 | 4822 051 30154 | 150kΩ 5% 0.062W       |
| 3P91 | 4822 051 30333 | 33kΩ 5% 0.062W        |
| 3P92 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3P93 | 4822 117 13632 | 100kΩ 1% 0.0603 0.62W |
| 3P94 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3P96 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3P97 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3P98 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3P99 | 5322 117 13046 | 1.8kΩ 1% 0.063W 0603  |
| 3PP1 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3PP3 | 2322 193 14104 | 100kΩ 5%              |
| 3S08 | 2322 193 14278 | 2.7kΩ 5%              |
| 3S14 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3S15 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 3S16 | 4822 051 30101 | 100Ω 5% 0.062W        |
| 3S17 | 4822 051 20479 | 47Ω 5% 0.1W           |
| 3S18 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3S20 | 4822 117 12864 | 82kΩ 5% 0.6W          |
| 3S21 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3S22 | 4822 051 20479 | 47Ω 5% 0.1W           |
| 3S23 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3S24 | 5322 117 13053 | 6.8kΩ 1% 0.063W 0603  |
| 3S28 | 3198 021 32290 | 22Ω 5% 0.0603         |
| 3S29 | 4822 051 30471 | 47Ω 5% 0.062W         |
| 3S30 | 4822 051 30123 | 12kΩ 5% 0.1W          |
| 3S31 | 4822 051 30124 | 120kΩ 5% 0.062W       |
| 3S32 | 4822 051 30334 | 330kΩ 5% 0.062W       |
| 3S33 | 4822 051 30333 | 33kΩ 5% 0.062W        |
| 3S34 | 4822 051 30333 | 33kΩ 5% 0.062W        |
| 3S35 | 4822 051 30472 | 4.7Ω 5% 0.062W        |
| 3S36 | 4822 051 30472 | 4.7Ω 5% 0.062W        |
| 3S37 | 4822 051 30102 | 1kΩ 5% 0.062W         |
| 3S39 | 3198 021 34780 | 4.7Ω 5% 0.0603        |
| 3S41 | 4822 051 30471 | 47Ω 5% 0.062W         |
| 3S50 | 3198 021 32290 | 22Ω 5% 0.0603         |
| 3S51 | 2322 193 14104 | 100kΩ 5%              |
| 3S59 | 4822 117 12891 | 220kΩ 1%              |
| 3S76 | 4822 051 30103 | 10kΩ 5% 0.062W        |
| 9P04 | 4822 051 20008 | Jumper 0805           |
| 9P58 | 4822 051 20478 | 4.7Ω 5% 0.1W          |



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|-------|----------------|---------------------|
| 5P00▲ | 2422 531 00133 | BS25504-02A         |
| 5P01▲ | 2422 531 00133 | BS25504-02A         |
| 5P03  | 4822 157 50961 | 22μH                |
| 5P04  | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5P05  | 4822 526 10704 | Bead 50 Ω at 100MHz |
| 5P06  | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5P07  | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5P08  | 4822 526 10704 | Bead 50 Ω at        |



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| 5S05 | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5S08 | 4822 526 10704 | Bead 50 Ω at 100MHz |
| 5S09 | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5S10 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5S11 | 4822 157 11411 | Bead 80Ω at 100MHz  |
| 5S12 | 4822 526 10704 | Bead 50 Ω at 100MHz |
| 5S14 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5S15 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5S16 | 4822 157 11716 | Bead 30Ω at 100MHz  |



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|------|----------------|----------------------|
| 6P01 | 9322 203 12673 | BYV27-600            |
| 6P02 | 9322 203 12673 | BYV27-600            |
| 6P03 | 9322 208 83685 | BZG05C27             |
| 6P04 | 9322 208 83685 | BZG05C27             |
| 6P05 | 9322 233 91687 | Bridge GBL08L-7000E3 |
| 6P06 | 9322 099 61685 | BYG10J               |
| 6P09 | 4822 130 11522 | UDZ15B               |
| 6P10 | 9322 202 75687 | BYW29FP-200          |
| 6P11 | 9322 202 75687 | BYW29FP-200          |
| 6P12 | 9322 202 75687 | BYW29FP-200          |
| 6P13 | 9322 202 75687 | BYW29FP-200          |
| 6P22 | 4822 130 11522 | UDZ15B               |
| 6P23 | 4822 130 11522 | UDZ15B               |
| 6P27 | 9322 202 55685 | BYG22D               |
| 6P28 | 4822 130 11397 | BAS316               |
| 6P31 | 4822 130 11522 | UDZ15B               |
| 6P47 | 9322 208 44685 | BZG05C6V8            |
| 6P50 | 4822 130 11522 | UDZ15B               |
| 6P51 | 4822 130 11416 | PDZ6.8B              |
| 6P53 | 4822 130 11397 | BAS316               |
| 6P80 | 4822 130 11397 | BAS316               |
| 6P81 | 4822 130 11152 | UDZ18B               |
| 6P82 | 4822 130 11397 | BAS316               |
| 6P83 | 4822 130 11397 | BAS316               |
| 6P84 | 4822 130 11397 | BAS316               |
| 6P85 | 4822 130 11397 | BAS316               |
| 6P86 | 4822 130 11397 | BAS316               |
| 6S01 | 5322 130 31938 | BYV27-200            |
| 6S04 | 9340 548 69115 | PDZ27B               |
| 6S05 | 4822 130 11522 | UDZ15B               |
| 6S07 | 4822 130 11572 | STPS8H100F           |
| 6S09 | 4822 130 11522 | UDZ15B               |
| 6S10 | 9322 102 64685 | UDZ2.7B              |
| 6S11 | 4822 130 11397 | BAS316               |
| 6S12 | 9322 202 55685 | BYG22D               |
| 6S13 | 4822 130 11397 | BAS316               |
| 6S30 | 9322 203 12673 | BYV27-600            |
| 6S31 | 4822 130 11522 | UDZ15B               |
| 6S47 | 9322 208 44685 | BZG05C6V8            |
| 6S49 | 3198 020 55680 | BZX384-C5V6          |



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|-------|----------------|---------------|
| 7P02  | 9322 194 26687 | STP6NK60Z     |
| 7P03  | 9322 192 16685 | TS2431AI      |
| 7P09  | 3198 010 42310 | BC847BW       |
| 7P10  | 3198 010 42310 | BC847BW       |
| 7P11▲ | 9322 149 04682 | TCET1102      |
| 7P12▲ | 9322 149 04682 | TCET1102      |
| 7P14  | 9340 557 69127 | PHX9NQ20T     |
| 7P15  | 3198 010 42310 | BC847BW       |
| 7P16  | 9322 192 16685 | TS2431AI      |
| 7P20  | 9340 436 50115 | BSP030        |
| 7P21  | 3198 010 42310 | BC847BW       |
| 7P22  | 3198 010 42320 | BC857BW       |
| 7P23  | 9340 436 50115 | BSP030        |
| 7P24  | 3198 010 42320 | BC857BW       |
| 7P26  | 9340 219 30115 | BC817-25W     |
| 7P27  | 9352 743 34518 | TEA1506AT/N1  |
| 7P80  | 3198 010 42310 | BC847BW       |
| 7P81  | 9322 192 16685 | TS2431AI      |
| 7P82  | 3198 010 42320 | BC857BW       |
| 7S02  | 9322 194 26687 | STP6NK60Z     |
| 7S03▲ | 9322 149 04682 | TCET1102      |
| 7S04  | 9322 192 16685 | TS2431AI      |
| 7S10  | 9352 700 18518 | ITEA1533AT/N1 |
| 7S11  | 9340 219 30115 | BC817-25W     |
| 7S31  | 9340 436 50115 | BSP030        |
| 7S40  | 3198 010 42310 | BC847BW       |

# Small Signal Board [B]



Software (see [www.p4c.philips.com](http://www.p4c.philips.com))

0802      3104 337 01901    See Philips Website

## Various

|       |                |                       |
|-------|----------------|-----------------------|
| 1B01  | 2422 033 00018 | Connector 19p f       |
| 1B02  | 2422 033 00018 | Connector 19p f       |
| 1C33  | 2422 086 11092 | Fuse 500mA 50V F SMD  |
| 1C51  | 2422 549 44369 | SAW 38.9MHz K9656L    |
| 1C52  | 2422 549 44372 | SAW 38.9MHz K3953L    |
| 1E40  | 2422 025 17601 | Connector 40p f       |
| 1E62  | 2422 025 17759 | Connector 20p f       |
| 1G01  | 2422 540 00017 | Reson. 60MHz CSTCW    |
| 1G02  | 2422 540 00012 | Reson. 10MHz CSTCE    |
| 1G50  | 2422 025 18427 | Connector 31p f       |
| 1H00  | 2422 543 01397 | Xtal 27MHz 18pF       |
| 1H01  | 2422 025 17775 | Socket USB 4p f       |
| 1LA0  | 2422 543 01443 | Xtal 16MHz 20pF       |
| 1M03  | 2422 025 10771 | Connector 10p m       |
| 1M15  | 2422 025 18749 | Connector 3p m        |
| 1M46  | 2422 025 10655 | Connector 11p m       |
| 1M52  | 2422 025 18744 | Connector 9p m        |
| 1M59  | 2422 025 19265 | Connector 5p m Bk     |
| 1M64  | 2422 025 18779 | Connector 4p m        |
| 1N00  | 2422 543 01095 | Res. 12MHz DSX840     |
| 1N62  | 2422 025 18779 | Connector 4p m        |
| 1P01  | 2422 025 19501 | Socket PCMCIA H 68P f |
| 1T05  | 3112 297 14651 | Tuner TD1316AF/IHP-3  |
| 1U01▲ | 2422 086 00623 | Fuse 3A T 125V        |
| 1U04▲ | 2422 086 00623 | Fuse 3A T 125V        |



|      |                |                    |
|------|----------------|--------------------|
| 2A01 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A20 | 4822 124 12095 | 100μF 20% 16V      |
| 2A21 | 4822 124 12095 | 100μF 20% 16V      |
| 2A22 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A23 | 2020 552 96618 | 1nF 10% 50V 0402   |
| 2A24 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A29 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A31 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A32 | 4822 124 80151 | 47μF 16V           |
| 2A34 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2A35 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2A36 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2A37 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2A38 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2A39 | 2020 552 96618 | 1nF 10% 50V 0402   |
| 2A79 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A81 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A83 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A84 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A85 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A86 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A87 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A88 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A91 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2A93 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A96 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2A98 | 4822 126 14324 | 33pF 5% 50V 0402   |
| 2A99 | 4822 126 14324 | 33pF 5% 50V 0402   |
| 2AA0 | 4822 124 12095 | 100μF 20% 16V      |
| 2AA1 | 4822 124 80151 | 47μF 16V           |
| 2AA2 | 4822 124 12095 | 100μF 20% 16V      |
| 2AA3 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2AA4 | 4822 124 12108 | 100μF 20% 4V       |
| 2AB1 | 2020 552 96618 | 1nF 10% 50V 0402   |
| 2AB2 | 2020 552 96618 | 1nF 10% 50V 0402   |
| 2AB5 | 2020 552 96618 | 1nF 10% 50V 0402   |
| 2B00 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B01 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B04 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B05 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B22 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B23 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B24 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B25 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B26 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B27 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B28 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B29 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B30 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B31 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B33 | 2238 869 15109 | 10pF 5% 50V 0402   |
| 2B35 | 2238 869 15109 | 10pF 5% 50V 0402   |
| 2B37 | 2238 869 15109 | 10pF 5% 50V 0402   |
| 2B38 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2B39 | 2020 004 00003 | 330μF 20% 6.3V     |
| 2B40 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B41 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B42 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B44 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B45 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B46 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2B49 | 2238 586 59812 | 100nF 20% 50V 0603 |

|      |                |                    |
|------|----------------|--------------------|
| 2B51 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B52 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B53 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B62 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B64 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B67 | 4822 124 81058 | 47μF 20% 4V        |
| 2B69 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B77 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B79 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B80 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B81 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2B89 | 5322 126 11583 | 10nF 10% 50V 0603  |
| 2B90 | 4822 124 81058 | 47μF 20% 4V        |
| 2B92 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2BA0 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2BA1 | 3198 035 14720 | 4.7nF 5% 25V 0402  |
| 2BA2 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2BA3 | 3198 035 14720 | 4.7nF 5% 25V 0402  |
| 2BA5 | 3198 034 01580 | 1.5pF 1% 50V 0402  |
| 2BA6 | 3198 034 01580 | 1.5pF 1% 50V 0402  |
| 2BA8 | 3198 034 01580 | 1.5pF 1% 50V 0402  |
| 2C01 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C02 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C03 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C04 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C06 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C07 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C08 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C09 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C12 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C13 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C15 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C16 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C17 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C18 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C19 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C20 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C22 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C23 | 2238 787 15641 | 22nF 5% 16V 0402   |
| 2C27 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C28 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C31 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C32 | 2020 004 90283 | 10μF 20% 10V 1206  |
| 2C33 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C34 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C35 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C36 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C37 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C39 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C40 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C43 | 4822 124 12108 | 100μF 20% 4V       |
| 2C44 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C45 | 2020 004 90283 | 10μF 20% 10V 1206  |
| 2C46 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C47 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2C48 | 2238 869 15101 | 100pF 5% 50V 0402  |
| 2C51 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C52 | 4822 124 23002 | 10μF 16V           |
| 2C53 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C55 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C57 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C58 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C60 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C63 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2C65 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C67 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C68 | 2022 552 05679 | 10nF 10% 16V 0805  |
| 2C70 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C72 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C75 | 2020 004 00003 | 330μF 20% 6.3V     |
| 2C78 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C79 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2C83 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2C84 | 2020 552 00216 | 220pF 5% 50V 0402  |
| 2C85 | 4822 126 14524 | 68pF 5% 50V 0402   |
| 2C86 | 3198 034 03380 | 3.3pF 1% 50V 0402  |
| 2G00 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G01 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G02 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G03 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G04 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G05 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G06 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G07 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G08 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G09 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G10 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G11 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G12 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G13 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2G14 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G15 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G16 | 2020 552 96628 | 10nF 10% 16V 0402  |
| 2G17 | 2020 552 96628 | 10nF 10% 16V 0402  |



|      |                |                    |      |                |                    |       |                |                     |
|------|----------------|--------------------|------|----------------|--------------------|-------|----------------|---------------------|
| 2Q71 | 2238 869 15101 | 100pF 5% 50V 0402  | 2U58 | 2022 552 05679 | 1µF 10% 16V 0805   | 3A44  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  |
| 2Q72 | 2238 869 15101 | 100pF 5% 50V 0402  | 2U72 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A45  | 3198 031 01830 | 18kΩ 5% 0.01W 0402  |
| 2Q73 | 2238 869 15101 | 100pF 5% 50V 0402  | 2U73 | 2020 552 96618 | 1nF 10% 50V 0402   | 3A46  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2Q74 | 2020 552 96618 | 1nF 10% 50V 0402   | 2U85 | 3198 035 03320 | 3.3nF 5% 50V 0402  | 3A47  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2Q75 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V00 | 2020 552 96618 | 1nF 10% 50V 0402   | 3A48  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2Q76 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V01 | 2020 552 96618 | 1nF 10% 50V 0402   | 3A49  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2Q77 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V02 | 2020 552 96618 | 1nF 10% 50V 0402   | 3A50  | 3198 031 01830 | 18kΩ 5% 0.01W 0402  |
| 2Q78 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V03 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A51  | 3198 031 06840 | 680kΩ 5% 0.01W 0402 |
| 2Q79 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V04 | 2020 552 96618 | 1nF 10% 50V 0402   | 3A52  | 4822 117 11297 | 100kΩ 5% 0.1W       |
| 2Q80 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V05 | 2238 869 15101 | 100pF 5% 50V 0402  | 3A53  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2Q81 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V06 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A54  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2Q91 | 3198 035 04710 | 470pF 50V 0402     | 2V07 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A55  | 4822 117 11297 | 100kΩ 5% 0.1W       |
| 2Q92 | 3198 035 47170 | 470pF 50V 0402     | 2V08 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A56  | 4822 051 30221 | 220Ω 5% 0.062W      |
| 2Q93 | 2020 552 96618 | 1nF 10% 50V 0402   | 2V09 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A57  | 3198 031 01510 | 150Ω 5% 0.01W 0402  |
| 2QA0 | 2022 552 05679 | 1µF 10% 16V 0805   | 2V16 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A58  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  |
| 2T02 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V17 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A60  | 2322 734 63309 | 33Ω 1% 0.1W 0805    |
| 2T03 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V18 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A61  | 2322 734 63309 | 33Ω 1% 0.1W 0805    |
| 2T04 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V19 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A62  | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 2T09 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V20 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A63  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T12 | 2020 552 96628 | 10nF 10% 16V 0402  | 2V21 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A64  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T17 | 4822 124 11946 | 22µF 20% 16V       | 2V22 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A65  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  |
| 2T18 | 2020 004 90283 | 10µF 20% 10V 1206  | 2V23 | 2238 586 59812 | 100F 20% 50V 0603  | 3A66  | 4822 117 11297 | 100kΩ 5% 0.1W       |
| 2T21 | 2020 552 96628 | 10nF 10% 16V 0402  | 2V24 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A67  | 2322 734 63309 | 33Ω 1% 0.1W 0805    |
| 2T24 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V25 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A68  | 2322 734 63309 | 33Ω 1% 0.1W 0805    |
| 2T28 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V26 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A69  | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 2T31 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V27 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A71  | 3198 031 01510 | 150Ω 5% 0.01W 0402  |
| 2T35 | 2022 552 05679 | 1µF 10% 16V 0805   | 2V28 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A72  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  |
| 2T36 | 2022 552 05679 | 1µF 10% 16V 0805   | 2V29 | 2238 586 59812 | 100F 20% 50V 0603  | 3A73  | 4822 051 30221 | 220Ω 5% 0.062W      |
| 2T58 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V30 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A74  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T59 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V31 | 2238 586 59812 | 100nF 20% 50V 0603 | 3A75  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T60 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V36 | 2238 586 59812 | 100F 20% 50V 0603  | 3A76  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  |
| 2T63 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V37 | 2238 869 15101 | 100pF 5% 50V 0402  | 3A77▲ | 4822 117 11748 | Fuse 2.2Ω 5% 1206   |
| 2T64 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V38 | 2022 552 05679 | 1µF 10% 16V 0805   | 3A78  | 4822 117 13601 | 22kΩ 5% 0402        |
| 2T65 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V39 | 2238 586 59812 | 100F 20% 50V 0603  | 3A79  | 3198 031 04730 | 47Ω 5% 0402         |
| 2T66 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V40 | 2238 869 15101 | 100pF 5% 50V 0402  | 3A86  | 3198 031 06890 | 68Ω 5% 0402         |
| 2T71 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V41 | 2022 552 05679 | 1µF 10% 16V 0805   | 3A87  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T72 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V42 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A88  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2T73 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V43 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A89  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2T74 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V44 | 2020 552 96628 | 10nF 10% 16V 0402  | 3A91  | 4822 117 12521 | 68Ω 1% 0.1W         |
| 2T75 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V45 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA1  | 4822 051 30221 | 220Ω 5% 0.062W      |
| 2T76 | 2020 004 90283 | 10µF 20% 10V 1206  | 2V46 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA2  | 4822 051 30221 | 220Ω 5% 0.062W      |
| 2T77 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V47 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA3  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T78 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V48 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA4  | 4822 117 13596 | 220Ω 5% 0.01W 0402  |
| 2T79 | 2020 552 96628 | 10nF 10% 16V 0402  | 2V49 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA5  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T80 | 2020 552 96628 | 10nF 10% 16V 0402  | 2V50 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA6  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T81 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V51 | 2020 552 96628 | 10nF 10% 16V 0402  | 3AA7  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T86 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V52 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B02  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T88 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V53 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B03  | 4822 117 13545 | 100Ω 1% 0402        |
| 2T89 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V54 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B04  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2T92 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V55 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B05  | 3198 031 04730 | 47Ω 5% 0402         |
| 2T93 | 2238 586 59812 | 100nF 20% 50V 0603 | 2V56 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B06  | 3198 031 04730 | 47Ω 5% 0402         |
| 2U00 | 2238 869 15101 | 100pF 5% 50V 0402  | 2V57 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B07  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U01 | 2238 869 15101 | 100pF 5% 50V 0402  | 2V58 | 2020 552 96628 | 10nF 10% 16V 0402  | 3B08  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U02 | 2238 869 15101 | 100pF 5% 50V 0402  | 2Z51 | 2238 586 59812 | 100nF 20% 50V 0603 | 3B14  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U03 | 2238 869 15101 | 100pF 5% 50V 0402  | 2Z52 | 2238 586 59812 | 100nF 20% 50V 0603 | 3B15  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U04 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B16  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2U05 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B17  | 3198 031 04730 | 47Ω 5% 0402         |
| 2U06 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B18  | 3198 031 04730 | 47Ω 5% 0402         |
| 2U07 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B19  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U09 | 2238 869 15101 | 100pF 5% 50V 0402  |      |                |                    | 3B20  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U10 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B23  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2U11 | 2022 552 05679 | 1µF 10% 16V 0805   |      |                |                    | 3B24  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2U12 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B27  | 3198 031 03390 | 33Ω 1% 0402         |
| 2U13 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B28  | 3198 031 03390 | 33Ω 1% 0402         |
| 2U14 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B29  | 3198 031 03390 | 33Ω 1% 0402         |
| 2U15 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B30  | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 2U16 | 2022 552 05679 | 1µF 10% 16V 0805   |      |                |                    | 3B31  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U17 | 2022 552 05635 | 22µF 10% 16V       |      |                |                    | 3B32  | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 2U18 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B33  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U19 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B34  | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 2U20 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B35  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U21 | 3198 035 03320 | 3.3nF 5% 50V 0402  |      |                |                    | 3B36  | 3198 031 01230 | 12kΩ 5% 0402        |
| 2U22 | 2020 552 00207 | 100µF 20% 6V3 1812 |      |                |                    | 3B37  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2U23 | 2238 869 15101 | 100pF 5% 50V 0402  |      |                |                    | 3B38  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2U24 | 2022 552 05635 | 22µF 10% 16V       |      |                |                    | 3B39  | 4822 117 13545 | 100Ω 1% 0402        |
| 2U25 | 2022 552 05635 | 22µF 10% 16V       |      |                |                    | 3B40  | 4822 117 13548 | 1kΩ 5% 0402         |
| 2U26 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B41  | 3198 031 03390 | 33Ω 1% 0402         |
| 2U27 | 2020 552 96618 | 1nF 10% 50V 0402   |      |                |                    | 3B43  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2U28 | 2020 552 96618 | 1nF 10% 50V 0402   |      |                |                    | 3B45  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2U29 | 2020 552 96618 | 1nF 10% 50V 0402   |      |                |                    | 3B46  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2U30 | 2020 552 96618 | 1nF 10% 50V 0402   |      |                |                    | 3B47  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 2U31 | 3198 035 03320 | 3.3nF 5% 50V 0402  |      |                |                    | 3B48  | 2322 706 71002 | 1kΩ 1% 0402         |
| 2U32 | 3198 035 03320 | 3.3nF 5% 50V 0402  |      |                |                    | 3B49  | 3198 031 04730 | 47Ω 5% 0402         |
| 2U33 | 2238 869 15101 | 100pF 5% 50V 0402  |      |                |                    | 3B50  | 4822 117 13543 | 470Ω 5% 0402        |
| 2U35 | 2022 552 05679 | 1µF 10% 16V 0805   |      |                |                    | 3B51  | 3198 021 34780 | 4.7Ω 5% 0603        |
| 2U37 | 2020 552 96684 | 470nF 10% 25V 0805 |      |                |                    | 3B52  | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 2U38 | 2238 586 59812 | 100nF 20% 50V 0603 |      |                |                    | 3B53  | 2322 702 60338 | 3.3Ω 5% 0603        |
| 2U39 | 2238 869 15101 | 100pF 5% 50V 0402  |      |                |                    | 3B56  | 2350 033 11339 | 4 x 33Ω 5%          |
| 2U40 | 2022 552 05679 | 1µF 10% 16V 0805   |      |                |                    | 3B57  | 2350 033 11339 | 4 x 33Ω 5%          |
| 2U41 | 2022 552 05679 | 1µF 10             |      |                |                    |       |                |                     |

|       |                |                     |      |                |                    |      |                |                    |
|-------|----------------|---------------------|------|----------------|--------------------|------|----------------|--------------------|
| 3B65  | 4822 117 13605 | Jumper 0402         | 3H06 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L33 | 4822 117 13546 | 47Ω 5% 0402        |
| 3B66  | 4822 117 13548 | 1kΩ 5% 0402         | 3H07 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L36 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3B67  | 4822 117 13605 | Jumper 0402         | 3H08 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L37 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3B68  | 4822 117 13548 | 1kΩ 5% 0402         | 3H10 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L38 | 4822 117 13548 | 1kΩ 5% 0402        |
| 3B69  | 4822 117 13605 | Jumper 0402         | 3H12 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L39 | 4822 117 13548 | 1kΩ 5% 0402        |
| 3B70  | 4822 117 13548 | 1kΩ 5% 0402         | 3H13 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L40 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B90  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 3H14 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L41 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B91  | 4822 117 11297 | 100kΩ 5% 0.1W       | 3H15 | 4822 117 13545 | 100Ω 1% 0402       | 3L42 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B92  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 3H16 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L43 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B93  | 4822 117 11297 | 100kΩ 5% 0.1W       | 3H18 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L44 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B95  | 4822 117 13543 | 470Ω 5% 0402        | 3H19 | 4822 117 13548 | 1kΩ 5% 0402        | 3L45 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B97  | 4822 117 13543 | 470Ω 5% 0402        | 3H20 | 2322 705 70399 | 39Ω 5% 0402        | 3L46 | 3198 031 03390 | 33Ω 1% 0402        |
| 3B99  | 4822 117 13543 | 470Ω 5% 0402        | 3H21 | 2322 705 70399 | 39Ω 5% 0402        | 3L47 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C30  | 2322 706 75601 | 560Ω 1% 0402        | 3H22 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L48 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C31▲ | 5322 117 11726 | 10Ω 5%              | 3H23 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L49 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C32  | 3198 031 01220 | 1.2kΩ 5% 0.01W 0402 | 3H25 | 4822 117 13545 | 100Ω 1% 0402       | 3L50 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C33  | 3198 031 08210 | 820Ω 5% 0.5W        | 3H26 | 4822 117 13545 | 100Ω 1% 0402       | 3L51 | 4822 117 13545 | 100Ω 1% 0402       |
| 3C34  | 3198 031 01220 | 1.2kΩ 5% 0.01W 0402 | 3H28 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L52 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C35  | 4822 117 13548 | 1kΩ 5% 0402         | 3H29 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L53 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C36  | 3198 031 08230 | 82kΩ 5% 0402        | 3H31 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L56 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C37  | 4822 117 13597 | 330Ω 5% 0.01W 0402  | 3H32 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L57 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C38  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3H41 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3L58 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C39  | 4822 117 13545 | 100Ω 1% 0402        | 3H48 | 3198 031 06890 | 68Ω 5% 0402        | 3L59 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C40  | 4822 117 13545 | 100Ω 1% 0402        | 3H49 | 3198 031 06890 | 68Ω 5% 0402        | 3L60 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C42  | 4822 117 13597 | 330Ω 5% 0.01W 0402  | 3H50 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3L61 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C45  | 3198 031 04730 | 47Ω 5% 0402         | 3H51 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3L62 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C46  | 3198 031 03390 | 33Ω 1% 0402         | 3H70 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L63 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C47  | 3198 031 04730 | 47Ω 5% 0402         | 3H71 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L64 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C49  | 3198 031 01810 | 180Ω 5% 0402        | 3H72 | 4822 117 13545 | 100Ω 1% 0402       | 3L65 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C50  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3H73 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L66 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C51▲ | 4822 117 11152 | 4.7Ω 5%             | 3H74 | 3198 031 06890 | 68Ω 5% 0402        | 3L67 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C53  | 3198 031 03910 | 390Ω 1% 0402        | 3H75 | 4822 117 13545 | 100Ω 1% 0402       | 3L68 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C56  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 3H79 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3L69 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C57  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 3H80 | 2350 033 11472 | 4x 4.7kΩ 5%        | 3L70 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C60  | 3198 031 02730 | 27kΩ 5% 0402        | 3H81 | 2350 033 11472 | 4x 4.7kΩ 5%        | 3L71 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C63  | 4822 117 13545 | 100Ω 1% 0402        | 3H82 | 3198 031 01050 | 1MΩ 5% 0402        | 3L89 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3C65  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3H83 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L90 | 4822 117 13548 | 1kΩ 5% 0402        |
| 3C67  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3H84 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L91 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C71  | 4822 117 13545 | 100Ω 1% 0402        | 3H85 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L92 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C72  | 3198 031 01810 | 180Ω 5% 0402        | 3H86 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L93 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C73  | 4822 117 13545 | 100Ω 1% 0402        | 3H87 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L94 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C74  | 3198 031 01810 | 180Ω 5% 0402        | 3H88 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L95 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C75  | 3198 031 01810 | 180Ω 5% 0402        | 3H90 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L96 | 3198 031 03390 | 33Ω 1% 0402        |
| 3C80  | 3198 031 03390 | 33Ω 1% 0402         | 3H92 | 3198 031 07590 | 75Ω 5% 0402        | 3L97 | 3198 031 03390 | 33Ω 1% 0402        |
| 3G05  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3H93 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L98 | 3198 031 03390 | 33Ω 1% 0402        |
| 3G08  | 3198 031 06890 | 68Ω 5% 0402         | 3H94 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3L99 | 3198 031 02290 | 22Ω 5% 0.1W 0402   |
| 3G09  | 3198 031 06890 | 68Ω 5% 0402         | 3H95 | 4822 117 13597 | 330Ω 5% 0.01W 0402 | 3LA0 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G10  | 3198 031 06890 | 68Ω 5% 0402         | 3H97 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3LA1 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G11  | 3198 031 06890 | 68Ω 5% 0402         | 3H98 | 4822 117 13545 | 100Ω 1% 0402       | 3LA2 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G12  | 4822 117 13605 | Jumper 0402         | 3H99 | 4822 117 13545 | 100Ω 1% 0402       | 3LA3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G13  | 3198 031 06890 | 68Ω 5% 0402         | 3J06 | 3198 031 02290 | 22Ω 5% 0.1W 0402   | 3LA4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G14  | 3198 031 06890 | 68Ω 5% 0402         | 3J07 | 4822 117 13605 | Jumper 0402        | 3LA5 | 4822 117 13548 | 1kΩ 5% 0402        |
| 3G15  | 3198 031 06890 | 68Ω 5% 0402         | 3J08 | 4822 117 13605 | Jumper 0402        | 3LA6 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G16  | 3198 031 06890 | 68Ω 5% 0402         | 3J11 | 4822 117 13605 | Jumper 0402        | 3LA7 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G17  | 3198 031 06890 | 68Ω 5% 0402         | 3J25 | 3198 031 04730 | 47Ω 5% 0402        | 3LA9 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G18  | 3198 031 06890 | 68Ω 5% 0402         | 3J26 | 4822 117 13601 | 22kΩ 5% 0402       | 3LB4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G23  | 3198 031 08220 | 8.2kΩ 5% 0.5W       | 3J28 | 2350 033 11103 | 4x 10kΩ 5% Netw.   | 3LB5 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G25  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3J43 | 4822 117 13546 | 47Ω 5% 0402        | 3LB7 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G26  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3J49 | 4822 117 13545 | 100Ω 1% 0402       | 3LB8 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G34  | 4822 117 13548 | 1kΩ 5% 0402         | 3J51 | 4822 117 13546 | 47Ω 5% 0402        | 3LB9 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G35  | 3198 031 01230 | 12kΩ 5% 0402        | 3J52 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3LC0 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G51  | 3198 031 04730 | 47Ω 5% 0402         | 3J55 | 4822 117 11297 | 100kΩ 5% 0.1W      | 3LC1 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G55  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J56 | 4822 117 11297 | 100kΩ 5% 0.1W      | 3LC2 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G56  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J66 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3LC3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G57  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J75 | 3198 031 04720 | 4.7kΩ 5% 0402      | 3LC4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G58  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J78 | 4822 117 13548 | 1kΩ 5% 0402        | 3LC6 | 3198 031 04720 | 4.7kΩ 5% 0402      |
| 3G59  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J79 | 4822 117 13548 | 1kΩ 5% 0402        | 3LC7 | 3198 031 04720 | 4.7kΩ 5% 0402      |
| 3G60  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3J86 | 4822 117 13548 | 1kΩ 5% 0402        | 3LC8 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G61  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3J88 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LC9 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G62  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3J91 | 4822 117 13545 | 100Ω 1% 0402       | 3LD0 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G63  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3J92 | 3198 031 04730 | 47Ω 5% 0402        | 3LD1 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G70  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 3J99 | 4822 117 13546 | 47Ω 5% 0402        | 3LD2 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G71  | 4822 117 13548 | 1kΩ 5% 0402         | 3L00 | 4822 117 11297 | 100kΩ 5% 0.1W      | 3LD3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G72  | 4822 117 11297 | 100kΩ 5% 0.1W       | 3L01 | 4822 117 11297 | 100kΩ 5% 0.1W      | 3LD4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G73  | 4822 117 13546 | 47Ω 5% 0402         | 3L02 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LD5 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G74  | 3198 031 01050 | 1MΩ 5% 0402         | 3L03 | 3198 031 04740 | 470kΩ 5% 0402      | 3LD6 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G77  | 4822 117 13545 | 100Ω 1% 0402        | 3L08 | 4822 117 13546 | 47Ω 5% 0402        | 3LD7 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G78  | 4822 117 13545 | 100Ω 1% 0402        | 3L09 | 4822 117 13546 | 47Ω 5% 0402        | 3LD8 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G83  | 4822 117 13548 | 1kΩ 5% 0402         | 3L10 | 4822 117 13546 | 47Ω 5% 0402        | 3LD9 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G85  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3L11 | 4822 117 13546 | 47Ω 5% 0402        | 3LE0 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G86  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3L12 | 4822 117 13546 | 47Ω 5% 0402        | 3LE1 | 4822 117 11373 | 100Ω 1% 0805       |
| 3G87  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3L13 | 4822 117 13546 | 47Ω 5% 0402        | 3LE2 | 4822 117 13545 | 100Ω 1% 0402       |
| 3G89  | 4822 117 13545 | 100Ω 1% 0402        | 3L14 | 4822 117 13546 | 47Ω 5% 0402        | 3LE3 | 3198 031 04720 | 4.7kΩ 5% 0402      |
| 3G90  | 4822 117 13545 | 100Ω 1% 0402        | 3L15 | 4822 117 13546 | 47Ω 5% 0402        | 3LE4 | 3198 031 04720 | 4.7kΩ 5% 0402      |
| 3G91  | 4822 117 13548 | 1kΩ 5% 0402         | 3L16 | 4822 117 13546 | 47Ω 5% 0402        | 3LE5 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 |
| 3G92  | 4822 117 135   |                     |      |                |                    |      |                |                    |

|      |                |                    |      |                |                     |      |                |                     |
|------|----------------|--------------------|------|----------------|---------------------|------|----------------|---------------------|
| 3LF6 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LT6 | 3198 031 06830 | 68kΩ 5% 0.01W 0402  | 3P38 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LF8 | 4822 117 13545 | 100Ω 1% 0402       | 3LT7 | 4822 117 11297 | 100kΩ 5% 0.1W       | 3P40 | 4822 117 13596 | 220Ω 5% 0.01W 0402  |
| 3LG3 | 4822 117 13545 | 100Ω 1% 0402       | 3LT8 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P43 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LG4 | 4822 117 11297 | 100kΩ 5% 0.1W      | 3LT9 | 3198 031 01090 | 10Ω 5% 0.01W 0402   | 3P45 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LG5 | 4822 117 13545 | 100Ω 1% 0402       | 3LU0 | 4822 117 11297 | 100kΩ 5% 0.1W       | 3P57 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LG6 | 4822 117 13545 | 100Ω 1% 0402       | 3LU1 | 3198 031 06830 | 68kΩ 5% 0.01W 0402  | 3P60 | 2350 033 11479 | 4x 47Ω 5%           |
| 3LG7 | 4822 117 13545 | 100Ω 1% 0402       | 3LU2 | 4822 117 13601 | 22kΩ 5% 0402        | 3P61 | 2350 033 11479 | 4x 47Ω 5%           |
| 3LG8 | 4822 117 13545 | 100Ω 1% 0402       | 3LU3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P62 | 2350 033 11479 | 4x 47Ω 5%           |
| 3LG9 | 4822 117 13545 | 100Ω 1% 0402       | 3LU4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P63 | 2350 033 11479 | 4x 47Ω 5%           |
| 3LH0 | 4822 117 13545 | 100Ω 1% 0402       | 3LU5 | 4822 117 13601 | 22kΩ 5% 0402        | 3P73 | 3198 031 01810 | 180Ω 5% 0402        |
| 3LH1 | 4822 117 13545 | 100Ω 1% 0402       | 3LU6 | 3198 031 06830 | 68kΩ 5% 0.01W 0402  | 3P74 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LH2 | 4822 117 11373 | 100Ω 1% 0805       | 3LU7 | 2322 705 70184 | 180Ω 5% 0402        | 3P75 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LH3 | 4822 117 13545 | 100Ω 1% 0402       | 3LU8 | 3198 031 01090 | 10Ω 5% 0.01W 0402   | 3P76 | 4822 117 13548 | 1kΩ 5% 0402         |
| 3LH4 | 4822 117 13545 | 100Ω 1% 0402       | 3LU9 | 3198 031 04730 | 47Ω 5% 0402         | 3P77 | 4822 117 13548 | 1kΩ 5% 0402         |
| 3LH5 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LV0 | 3198 031 03340 | 330kΩ 5% 0402       | 3P78 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LH6 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LV1 | 3198 031 06830 | 68kΩ 5% 0.01W 0402  | 3P79 | 3198 031 02710 | 270Ω 5% 0.1W 0402   |
| 3LH7 | 4822 117 11373 | 100Ω 1% 0805       | 3LV2 | 4822 117 13601 | 22kΩ 5% 0402        | 3P80 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LH8 | 4822 117 13545 | 100Ω 1% 0402       | 3LV3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P81 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3LH9 | 4822 117 13545 | 100Ω 1% 0402       | 3LV4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P82 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LJ0 | 4822 117 13545 | 100Ω 1% 0402       | 3LV5 | 4822 117 13601 | 22kΩ 5% 0402        | 3P83 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LJ1 | 4822 117 13545 | 100Ω 1% 0402       | 3LV6 | 3198 031 06830 | 68kΩ 5% 0.01W 0402  | 3P84 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LJ2 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LV7 | 2322 705 70564 | 560kΩ 5% 0402       | 3P85 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LJ3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3LV8 | 3198 031 01090 | 10Ω 5% 0.01W 0402   | 3P86 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LJ4 | 4822 117 13545 | 100Ω 1% 0402       | 3M00 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3P88 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LJ5 | 4822 117 13545 | 100Ω 1% 0402       | 3M01 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q00 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LJ6 | 4822 117 13545 | 100Ω 1% 0402       | 3M02 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q03 | 3198 031 04720 | 4.7kΩ 5% 0402       |
| 3LJ7 | 4822 117 13545 | 100Ω 1% 0402       | 3M03 | 4822 117 13603 | 33kΩ 5% 0402        | 3Q04 | 3198 031 04720 | 4.7kΩ 5% 0402       |
| 3LJ8 | 4822 117 13545 | 100Ω 1% 0402       | 3M04 | 3198 031 01830 | 18kΩ 5% 0.01W 0402  | 3Q05 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LJ9 | 4822 117 13545 | 100Ω 1% 0402       | 3M05 | 4822 117 13548 | 1kΩ 5% 0402         | 3Q06 | 2322 705 70399 | 39Ω 5% 0402         |
| 3LK0 | 4822 117 13545 | 100Ω 1% 0402       | 3M09 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q07 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LK1 | 4822 117 13545 | 100Ω 1% 0402       | 3M14 | 3198 021 34780 | 4.7Ω 5% 0603        | 3Q08 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LK2 | 4822 117 13545 | 100Ω 1% 0402       | 3M70 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 3Q09 | 3198 031 03390 | 33Ω 1% 0402         |
| 3LK3 | 4822 117 13545 | 100Ω 1% 0402       | 3M71 | 3198 031 01220 | 1.2kΩ 5% 0.01W 0402 | 3Q10 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK4 | 4822 117 13545 | 100Ω 1% 0402       | 3M72 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q11 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK5 | 4822 117 13545 | 100Ω 1% 0402       | 3M73 | 4822 117 13543 | 470Ω 5% 0402        | 3Q12 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK6 | 4822 117 13545 | 100Ω 1% 0402       | 3M74 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q13 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK7 | 4822 117 13545 | 100Ω 1% 0402       | 3M75 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q14 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK8 | 4822 117 13545 | 100Ω 1% 0402       | 3M76 | 4822 117 13548 | 1kΩ 5% 0402         | 3Q15 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LK9 | 4822 117 13545 | 100Ω 1% 0402       | 3M77 | 3198 031 01520 | 1.2kΩ 5% 0.01W 0402 | 3Q16 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  |
| 3LL0 | 4822 117 13545 | 100Ω 1% 0402       | 3M78 | 4822 117 13548 | 1kΩ 5% 0402         | 3Q17 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  |
| 3LL1 | 4822 117 13545 | 100Ω 1% 0402       | 3M79 | 4822 117 13548 | 1kΩ 5% 0402         | 3Q18 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  |
| 3LL2 | 4822 117 13545 | 100Ω 1% 0402       | 3M80 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q23 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  |
| 3LL3 | 4822 117 13545 | 100Ω 1% 0402       | 3M81 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q24 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LL4 | 4822 117 13545 | 100Ω 1% 0402       | 3M82 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q25 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LL5 | 4822 117 13545 | 100Ω 1% 0402       | 3N06 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q26 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LL6 | 4822 117 13545 | 100Ω 1% 0402       | 3N07 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q27 | 3198 031 04720 | 4.7kΩ 5% 0402       |
| 3LL7 | 4822 117 13545 | 100Ω 1% 0402       | 3N08 | 2322 706 71203 | 12kΩ 5% 0402        | 3Q28 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LL8 | 4822 117 13597 | 330Ω 5% 0.01W 0402 | 3N09 | 4822 117 13545 | 100Ω 1% 0402        | 3Q29 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3LL9 | 4822 117 13596 | 220Ω 5% 0.01W 0402 | 3N12 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  | 3Q30 | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 |
| 3LM0 | 4822 117 11373 | 100Ω 1% 0805       | 3N13 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  | 3Q31 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LM1 | 4822 117 11373 | 100Ω 1% 0805       | 3N14 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  | 3Q32 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LM2 | 4822 117 11373 | 100Ω 1% 0805       | 3N15 | 3198 031 01530 | 15kΩ 5% 0.01W 0402  | 3Q33 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LM3 | 4822 117 11373 | 100Ω 1% 0805       | 3N25 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q34 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LM4 | 4822 117 11373 | 100Ω 1% 0805       | 3N30 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q35 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LM5 | 4822 117 11373 | 100Ω 1% 0805       | 3N31 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q37 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LM6 | 4822 117 11373 | 100Ω 1% 0805       | 3N32 | 4822 117 10353 | 150Ω 1% 0.1W        | 3Q38 | 2350 033 10101 | 4 x 100Ω 5%         |
| 3LM7 | 4822 117 11373 | 100Ω 1% 0805       | 3N33 | 3198 021 34780 | 4.7Ω 5% 0603        | 3Q39 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LN0 | 4822 117 11373 | 100Ω 1% 0805       | 3N90 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q40 | 2350 033 10101 | 4 x 100Ω 5%         |
| 3LN1 | 4822 117 11373 | 100Ω 1% 0805       | 3N92 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q41 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LN2 | 4822 117 11373 | 100Ω 1% 0805       | 3O15 | 4822 117 13545 | 100Ω 1% 0402        | 3Q43 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LN3 | 4822 117 11373 | 100Ω 1% 0805       | 3O16 | 4822 117 13545 | 100Ω 1% 0402        | 3Q44 | 2350 033 11689 | 4x 68Ω 5% Netw.     |
| 3LN4 | 4822 117 11373 | 100Ω 1% 0805       | 3P01 | 3198 031 04720 | 4.7kΩ 5% 0402       | 3Q45 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LN5 | 4822 117 11373 | 100Ω 1% 0805       | 3P02 | 4822 117 13545 | 100Ω 1% 0402        | 3Q47 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LN6 | 4822 117 11373 | 100Ω 1% 0805       | 3P03 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q48 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LN7 | 4822 117 11373 | 100Ω 1% 0805       | 3P04 | 4822 117 13548 | 1kΩ 5% 0402         | 3Q49 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LQ6 | 4822 117 11373 | 100Ω 1% 0805       | 3P05 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q50 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LQ7 | 4822 117 13545 | 100Ω 1% 0402       | 3P06 | 4822 117 13545 | 100Ω 1% 0402        | 3Q51 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LQ8 | 4822 117 13545 | 100Ω 1% 0402       | 3P08 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q52 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LR0 | 3198 031 03390 | 33Ω 1% 0402        | 3P09 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q53 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR1 | 3198 031 03390 | 33Ω 1% 0402        | 3P10 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q55 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR2 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3P12 | 4822 117 13545 | 100Ω 1% 0402        | 3Q57 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR3 | 2350 033 11339 | 4 x 33Ω 5%         | 3P13 | 4822 117 13545 | 100Ω 1% 0402        | 3Q59 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR4 | 2350 033 11339 | 4 x 33Ω 5%         | 3P14 | 4822 117 13545 | 100Ω 1% 0402        | 3Q61 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR5 | 2350 033 11339 | 4 x 33Ω 5%         | 3P15 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q63 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR6 | 2350 033 11339 | 4 x 33Ω 5%         | 3P16 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q64 | 4822 117 13548 | 1kΩ 5% 0402         |
| 3LR7 | 2350 033 11339 | 4 x 33Ω 5%         | 3P17 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q66 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR8 | 2350 033 11339 | 4 x 33Ω 5%         | 3P18 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q67 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LR9 | 2350 033 11339 | 4 x 33Ω 5%         | 3P19 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q68 | 4822 117 13546 | 47Ω 5% 0402         |
| 3LS0 | 2350 033 11339 | 4 x 33Ω 5%         | 3P20 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q69 | 3198 031 02290 | 22Ω 5% 0.1W 0402    |
| 3LS1 | 2350 033 11339 | 4 x 33Ω 5%         | 3P21 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q70 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3LS2 | 3198 031 06810 | 680Ω 5% 0.01W 0402 | 3P22 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q72 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LS3 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3P23 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q73 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LS4 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3P24 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q74 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LS5 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3P25 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q75 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LS6 | 4822 117 13606 | 10kΩ 5% 0.01W 0402 | 3P26 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3Q76 | 4822 117 13545 | 100Ω 1% 0402        |
| 3LS7 |                |                    |      |                |                     |      |                |                     |



|       |                |                     |      |                |                  |      |                |             |
|-------|----------------|---------------------|------|----------------|------------------|------|----------------|-------------|
| 3T09  | 4822 117 13545 | 100Ω 1% 0402        | 3V04 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9LA9 | 4822 117 13605 | Jumper 0402 |
| 3T13  | 4822 117 13548 | 1kΩ 5% 0402         | 3V05 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9LC7 | 4822 117 13605 | Jumper 0402 |
| 3T52  | 3198 031 04730 | 47Ω 5% 0402         | 3V06 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9M01 | 4822 117 13605 | Jumper 0402 |
| 3T64  | 4822 117 13601 | 22kΩ 5% 0402        | 3V07 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9M02 | 4822 117 13605 | Jumper 0402 |
| 3T65  | 4822 117 13603 | 33kΩ 5% 0402        | 3V08 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9M04 | 4822 117 13605 | Jumper 0402 |
| 3T66  | 4822 117 13601 | 22kΩ 5% 0402        | 3V09 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9M05 | 4822 117 13605 | Jumper 0402 |
| 3T68  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3V10 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P01 | 4822 117 13605 | Jumper 0402 |
| 3T69  | 3198 031 04720 | 4.7kΩ 5% 0402       | 3V11 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P02 | 4822 117 13605 | Jumper 0402 |
| 3T70  | 3198 031 02240 | 220kΩ 5% 0.1W 0402  | 3V12 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P06 | 4822 117 13605 | Jumper 0402 |
| 3T71  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 3V13 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P07 | 4822 117 13605 | Jumper 0402 |
| 3T73  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3V14 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P08 | 4822 117 13605 | Jumper 0402 |
| 3T74  | 4822 117 13548 | 1kΩ 5% 0402         | 3V15 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P09 | 4822 117 13605 | Jumper 0402 |
| 3T76  | 3198 031 05610 | 560Ω 5% 0.01W 0402  | 3V16 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P17 | 4822 117 13605 | Jumper 0402 |
| 3T80  | 4822 117 13597 | 330Ω 5% 0.01W 0402  | 3V17 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P22 | 4822 117 13605 | Jumper 0402 |
| 3T82  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3V18 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P30 | 4822 117 13605 | Jumper 0402 |
| 3T85  | 4822 117 13548 | 1kΩ 5% 0402         | 3V19 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P31 | 4822 117 13605 | Jumper 0402 |
| 3T86  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3V20 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P32 | 4822 117 13605 | Jumper 0402 |
| 3T90  | 4822 117 13545 | 100Ω 1% 0402        | 3V21 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P34 | 4822 117 13605 | Jumper 0402 |
| 3T91  | 2350 033 11689 | 4x 68Ω 5% Netw.     | 3V22 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P36 | 4822 117 13605 | Jumper 0402 |
| 3T92  | 4822 117 13545 | 100Ω 1% 0402        | 3V23 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P37 | 4822 117 13605 | Jumper 0402 |
| 3T93  | 4822 117 11297 | 100kΩ 5% 0.1W       | 3V24 | 3198 031 01810 | 180Ω 5% 0402     | 9P38 | 4822 117 13605 | Jumper 0402 |
| 3T96  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3V25 | 3198 031 01810 | 180Ω 5% 0402     | 9P41 | 4822 117 13605 | Jumper 0402 |
| 3T97  | 4822 117 13548 | 1kΩ 5% 0402         | 3V32 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P50 | 4822 117 13605 | Jumper 0402 |
| 3T98  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3V33 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9P79 | 4822 117 13605 | Jumper 0402 |
| 3U00  | 4822 117 13603 | 33kΩ 5% 0402        | 3V34 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9Q10 | 4822 117 13605 | Jumper 0402 |
| 3U01  | 4822 117 13603 | 33kΩ 5% 0402        | 3V35 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9Q13 | 4822 117 13605 | Jumper 0402 |
| 3U02  | 4822 117 13596 | 220Ω 5% 0.01W 0402  | 3V36 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9Q15 | 4822 117 13605 | Jumper 0402 |
| 3U03  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 3V37 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9Q19 | 4822 117 13605 | Jumper 0402 |
| 3U04  | 4822 117 13601 | 22kΩ 5% 0402        | 3V38 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T08 | 4822 117 13605 | Jumper 0402 |
| 3U05  | 4822 117 13596 | 220Ω 5% 0.01W 0402  | 3V39 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T12 | 4822 117 13605 | Jumper 0402 |
| 3U06  | 3198 031 03930 | 39kΩ 5% 0402        | 3V40 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T19 | 4822 117 13605 | Jumper 0402 |
| 3U07  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 3V41 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T20 | 4822 117 13605 | Jumper 0402 |
| 3U08  | 3198 031 03320 | 3.3kΩ 5% 0402       | 3V42 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T23 | 4822 117 13605 | Jumper 0402 |
| 3U09  | 3198 031 03320 | 3.3kΩ 5% 0402       | 3V43 | 3198 031 02290 | 22Ω 5% 0.1W 0402 | 9T24 | 4822 117 13605 | Jumper 0402 |
| 3U10  | 4822 117 13548 | 1kΩ 5% 0402         | 3V45 | 2322 706 73301 | 330Ω 1% 0402     | 9T36 | 4822 117 13605 | Jumper 0402 |
| 3U11  | 4822 051 30221 | 220Ω 5% 0.062W      | 3V46 | 2322 706 76801 | 680Ω 1% 0402     | 9T37 | 4822 117 13605 | Jumper 0402 |
| 3U12  | 4822 117 13548 | 1kΩ 5% 0402         | 3V47 | 2322 706 75601 | 560Ω 1% 0402     | 9T39 | 4822 117 13605 | Jumper 0402 |
| 3U13  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 3V48 | 2322 706 75601 | 560Ω 1% 0402     | 9T41 | 4822 117 13605 | Jumper 0402 |
| 3U14  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 3V78 | 4822 117 13548 | 1kΩ 5% 0402      | 9T43 | 4822 117 13605 | Jumper 0402 |
| 3U15  | 4822 117 13548 | 1kΩ 5% 0402         | 3Z53 | 4822 117 13545 | 100Ω 1% 0402     | 9T73 | 4822 117 13605 | Jumper 0402 |
| 3U16  | 2322 706 74702 | 4.7kΩ 5% 0402       | 3Z54 | 4822 117 13545 | 100Ω 1% 0402     | 9U03 | 4822 117 13605 | Jumper 0402 |
| 3U17  | 2322 706 71002 | 1kΩ 1% 0402         | 9A01 | 4822 051 20008 | Jumper 0805      | 9U04 | 4822 051 20008 | Jumper 0805 |
| 3U18  | 4822 117 13596 | 220Ω 5% 0.01W 0402  | 9A06 | 4822 051 20008 | Jumper 0805      | 9U05 | 4822 051 20008 | Jumper 0805 |
| 3U19  | 4822 117 13601 | 22kΩ 5% 0402        | 9A11 | 4822 117 13605 | Jumper 0402      | 9U12 | 4822 051 20008 | Jumper 0805 |
| 3U20  | 4822 051 30109 | 10Ω 5% 0.062W       | 9A15 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U21  | 4822 051 30109 | 10Ω 5% 0.062W       | 9A16 | 4822 117 13545 | 100Ω 1% 0402     |      |                |             |
| 3U22▲ | 5322 117 11726 | 10Ω 5%              | 9A17 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U24  | 4822 051 30109 | 10Ω 5% 0.062W       | 9A18 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U25  | 4822 117 13613 | 2.2Ω 5% 0603        | 9A19 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U27  | 4822 051 30109 | 10Ω 5% 0.062W       | 9A23 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U28  | 4822 117 13613 | 2.2Ω 5% 0603        | 9A24 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U29  | 4822 117 13548 | 1kΩ 5% 0402         | 9A25 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U30  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 9A77 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U32  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9A79 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U33  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9B11 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U37  | 2322 706 74701 | 470Ω 1% 0402        | 9B13 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U38  | 3198 031 04720 | 4.7kΩ 5% 0402       | 9B14 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U41  | 2322 706 73303 | 33kΩ 5% 0402        | 9B16 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U42  | 3198 031 01090 | 10Ω 5% 0.01W 0402   | 9B19 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U45  | 3198 031 01050 | 1MΩ 5% 0402         | 9B32 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U46  | 2322 706 71203 | 12kΩ 5% 0402        | 9C51 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U54  | 3198 031 01090 | 10Ω 5% 0.01W 0402   | 9C57 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U55  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9C60 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U56  | 4822 117 13548 | 1kΩ 5% 0402         | 9C61 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U80  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9G10 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U82  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 9G11 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U83  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 9G12 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U85  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9G35 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U86  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H03 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U87  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H05 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U88  | 4822 117 13545 | 100Ω 1% 0402        | 9H06 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U89  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H07 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U90  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H08 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U91  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H13 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U92  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H15 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U93  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9H16 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U94  | 3198 031 03320 | 3.3kΩ 5% 0402       | 9H18 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U95  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 9H19 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U96  | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 | 9H26 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3U97  | 3198 031 03320 | 3.3kΩ 5% 0402       | 9H27 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA1  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 9H29 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA2  | 4822 117 11297 | 100kΩ 5% 0.1W       | 9H30 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA3  | 4822 117 13602 | 2.2kΩ 5% 0.01W 0402 | 9H32 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA4  | 2322 706 71002 | 1kΩ 1% 0402         | 9H33 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA5  | 4822 117 13546 | 1kΩ 5% 0402         | 9H34 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA7  | 2322 706 71002 | 1kΩ 1% 0402         | 9H40 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA8  | 3198 031 06890 | 68Ω 5% 0402         | 9J08 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UA9  | 3198 031 06890 | 68Ω 5% 0402         | 9J16 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UB1  | 4822 117 13606 | 10kΩ 5% 0.01W 0402  | 9J17 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3UB2  | 4822 117 13601 | 22kΩ 5% 0402        | 9J24 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3V00  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 9LA0 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3V01  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 9LA1 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3V02  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 9LA7 | 4822 117 13605 | Jumper 0402      |      |                |             |
| 3V03  | 3198 031 02290 | 22Ω 5% 0.1W 0402    | 9LA8 | 4822 117 13605 | Jumper 0402      |      |                |             |

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| 5J52 | 2422 549 45325 | Bead 67Ω at 100MHz  |
| 5J54 | 2422 549 45325 | Bead 67Ω at 100MHz  |
| 5J56 | 2422 549 45325 | Bead 67Ω at 100MHz  |
| 5J58 | 2422 549 45325 | Bead 67Ω at 100MHz  |
| 5J60 | 2422 549 45325 | Bead 67Ω at 100MHz  |
| 5L01 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5L50 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5L51 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5L52 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5LA1 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5LA2 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5LA3 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5LN0 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5LN1 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5LN2 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5LN3 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5LN4 | 2422 549 43062 | Bead 600Ω at 100MHz |
| 5N00 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5N01 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5N02 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5P02 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5P08 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5Q01 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5Q02 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5Q03 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5Q04 | 2422 549 43769 | Bead 30Ω at 100MHz  |
| 5Q06 | 3198 018 52280 | 2.2μH 10% 0603      |
| 5Q07 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5T01 | 3198 018 33370 | 0.33μH 10% 0805     |
| 5T04 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5T08 | 4822 157 71206 | Bead 600Ω 100MHz    |
| 5T15 | 3198 018 90050 | Bead 1kΩ at 100MHz  |
| 5U00 | 2422 536 00671 | 10μH 20%            |
| 5U01 | 4822 051 20008 | Jumper 0805         |
| 5U02 | 2422 536 00779 | 10μH 20%            |
| 5U03 | 2422 536 00671 | 10μH 20%            |
| 5U04 | 4822 051 20008 | Jumper 0805         |
| 5U05 | 4822 051 20008 | Jumper 0805         |
| 5U06 | 4822 051 20008 | Jumper 0805         |
| 5U07 | 4822 051 20008 | Jumper 0805         |
| 5U08 | 4822 051 20008 | Jumper 0805         |
| 5U10 | 4822 051 20008 | Jumper 0805         |
| 5U11 | 4822 051 20008 | Jumper 0805         |
| 5U12 | 4822 051 20008 | Jumper 0805         |
| 5U13 | 4822 051 20008 | Jumper 0805         |
| 5U14 | 4822 051 20008 | Jumper 0805         |
| 5V01 | 2422 549 44197 | Bead 220Ω at 100MHz |
| 5Z50 | 2422 549 43769 | Bead 30Ω at 100MHz  |



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|------|----------------|-------------|
| 6A00 | 4822 130 80622 | BAT54       |
| 6A01 | 4822 130 80622 | BAT54       |
| 6A02 | 4822 130 11397 | BAS316      |
| 6B20 | 4822 130 11397 | BAS316      |
| 6B21 | 4822 130 11397 | BAS316      |
| 6B22 | 4822 130 11397 | BAS316      |
| 6B23 | 4822 130 11397 | BAS316      |
| 6C52 | 9340 552 30115 | BA591       |
| 6G01 | 4822 130 11397 | BAS316      |
| 6G02 | 5322 130 34331 | BAV70       |
| 6G03 | 5322 130 34331 | BAV70       |
| 6G04 | 5322 130 34331 | BAV70       |
| 6H00 | 9322 134 46685 | SML-310MT   |
| 6H01 | 4822 130 11397 | BAS316      |
| 6H03 | 4822 130 11397 | BAS316      |
| 6J01 | 3198 020 55680 | BZX384-C5V6 |
| 6J06 | 9322 134 46685 | SML-310MT   |
| 6J07 | 4822 130 11397 | BAS316      |
| 6J08 | 4822 130 80622 | BAT54       |
| 6L00 | 4822 130 11397 | BAS316      |
| 6L01 | 4822 130 11397 | BAS316      |
| 6L02 | 4822 130 11397 | BAS316      |
| 6L03 | 4822 130 11397 | BAS316      |
| 6M10 | 4822 130 11397 | BAS316      |
| 6M11 | 4822 130 11397 | BAS316      |
| 6O02 | 9340 566 10115 | BAV99S      |
| 6P00 | 4822 130 11397 | BAS316      |
| 6P10 | 4822 130 11397 | BAS316      |
| 6P11 | 4822 130 11397 | BAS316      |
| 6U05 | 9322 165 17668 | STPS2L30A   |
| 6U06 | 9340 548 58115 | PDZ9.1B     |
| 6U07 | 9322 165 17668 | STPS2L30A   |
| 6U17 | 4822 130 10838 | UDZ3.3B     |
| 6U21 | 4822 130 11152 | UDZ18B      |
| 6U22 | 4822 130 11397 | BAS316      |
| 6U23 | 4822 130 11397 | BAS316      |
| 6U24 | 4822 130 11397 | BAS316      |



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|------|----------------|---------|
| 7A01 | 9340 425 20115 | BC847BS |
|------|----------------|---------|

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| 7A02 | 3198 010 42310 | BC847BW         |
| 7A04 | 9322 187 67668 | TS482IS         |
| 7A05 | 9322 185 74668 | LM324P          |
| 7A06 | 9340 219 30115 | BC817-25W       |
| 7A07 | 9340 219 30115 | BC817-25W       |
| 7A08 | 9340 425 30115 | BC847BPN        |
| 7A09 | 3198 010 44350 | BC807-25W       |
| 7A10 | 9340 425 30115 | BC847BPN        |
| 7A11 | 3198 010 44350 | BC807-25W       |
| 7A12 | 9340 425 30115 | BC847BPN        |
| 7A13 | 9351 875 80118 | 74HC04PW        |
| 7A15 | 3198 010 42320 | BC857BW         |
| 7A16 | 3198 010 42310 | BC847BW         |
| 7A17 | 3198 010 42310 | BC847BW         |
| 7B02 |                | For SW see 0802 |
| 7B03 |                | For SW see 0802 |
| 7B11 | 9352 798 11557 | TDA9975EL/8/C2  |
| 7B12 | 9322 213 50685 | TS431AIL        |
| 7B13 | 4822 130 42804 | BC817-25        |
| 7B30 | 3198 010 42310 | BC847BW         |
| 7B31 | 3198 010 42310 | BC847BW         |
| 7B38 | 4822 209 17398 | LD1117DT33      |
| 7C00 | 9352 767 55557 | PNX3000HL/N3    |
| 7C31 | 9340 425 20115 | BC847BS         |
| 7C32 | 9340 425 30115 | BC847BPN        |
| 7C54 | 3198 010 42310 | BC847BW         |
| 7C55 | 3198 010 42310 | BC847BW         |
| 7C56 | 9340 425 20115 | BC847BS         |
| 7G01 | 9322 214 08685 | LD2985BM25      |
| 7G02 | 9322 206 45668 | M25P05-AVMN6P   |
| 7G04 | 9322 230 92671 | PACIFIC3-N3(O2) |
| 7G07 | 9322 144 97668 | LD1117DT        |
| 7G31 | 9340 425 30115 | BC847BPN        |
| 7G34 | 3198 010 42310 | BC847BW         |
| 7G35 | 3198 010 44310 | PDTC114EU       |
| 7H01 | 3198 010 44310 | PDTC114EU       |
| 7J00 | 9352 806 64557 | PNX2015E/M1E02  |
| 7J01 | 3198 010 42310 | BC847BW         |
| 7J02 | 9340 425 30115 | BC847BPN        |
| 7J06 | 9322 204 10685 | SI3441BDV       |
| 7J07 | 9340 425 20115 | BC847BS         |
| 7J08 | 9322 211 75685 | SN74LVC1G126DCK |
| 7J09 | 3198 010 42310 | BC847BW         |
| 7L50 | 9322 228 06671 | K4D261638I-LC40 |
| 7LA2 | 9340 425 30115 | BC847BPN        |
| 7LA3 | 9340 425 30115 | BC847BPN        |
| 7LA4 | 9340 560 35235 | BSH112          |
| 7LA5 | 9340 560 35235 | BSH112          |
| 7LA7 |                | For SW see 0802 |
| 7LB0 | 9322 204 63685 | NCP303LSN10     |
| 7LB1 | 9322 204 63685 | NCP303LSN10     |
| 7LB2 | 9322 204 63685 | NCP303LSN10     |
| 7LB3 | 9322 204 63685 | NCP303LSN10     |
| 7LB4 | 9322 204 63685 | NCP303LSN10     |
| 7LB5 | 3198 010 42310 | BC847BW         |
| 7LB6 | 3198 010 44310 | PDTC114EU       |
| 7LB7 | 3198 010 44310 | PDTC114EU       |
| 7M01 | 3198 010 44310 | PDTC114EU       |
| 7M03 | 9322 204 63685 | NCP303LSN10     |
| 7M04 | 5322 130 60159 | BC846B          |
| 7M05 | 9322 213 50685 | TS431AIL        |
| 7M06 | 9322 213 50685 | TS431AIL        |
| 7M07 | 5322 130 60159 | BC846B          |
| 7M10 | 5322 130 60159 | BC846B          |
| 7M11 | 5322 130 60159 | BC846B          |
| 7M12 | 5322 130 60159 | BC846B          |
| 7N00 | 9352 698 49518 | ISP1561BM       |
| 7N10 | 5322 130 60159 | BC846B          |
| 7P00 | 9322 173 43668 | TPS2211AIDB     |
| 7P03 | 9322 160 60668 | STV0701         |
| 7P14 | 9322 206 22668 | M24C64-WDW6P    |
| 7P15 | 9351 750 00118 | 74HC4066PW      |
| 7P16 | 3198 010 44310 | PDTC114EU       |
| 7P17 | 3198 010 44310 | PDTC114EU       |
| 7P18 | 3198 010 42320 | BC857BW         |
| 7P20 | 3198 010 44310 | PDTC114EU       |
| 7P21 | 3198 010 44310 | PDTC114EU       |
| 7P22 | 3198 010 44310 | PDTC114EU       |
| 7P23 | 3198 010 44310 | PDTC114EU       |
| 7P31 | 9352 190 20118 | 74LVC573APW     |
| 7P32 | 9352 190 20118 | 74LVC573APW     |
| 7P34 | 9352 115 40118 | 74LVC245APW     |
| 7P76 | 9352 115 40118 | 74LVC245APW     |
| 7P77 | 9352 115 40118 | 74LVC245APW     |
| 7P80 |                | For SW see 0802 |
| 7P81 | 9352 115 40118 | 74LVC245APW     |
| 7Q01 | 9322 204 86668 | LM3526M-LNOPB   |
| 7Q05 | 9340 425 20115 | BC847BS         |
| 7T02 | 9322 104 47668 | L78M05CDT       |
| 7T13 | 9352 685 96125 | 74LVC1GU04GW    |
| 7T14 | 9322 217 28668 | LD1117DT18      |
| 7T17 | 9352 732 45557 | TDA10046AHT/C1  |
| 7T18 | 9340 425 30115 | BC847BPN        |
| 7T19 | 9340 425 30115 | BC847BPN        |

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| 7U00 | 9322 207 46668 | NCP5422AD       |
| 7U01 | 9322 218 27668 | SI4944DY        |
| 7U03 | 9322 218 27668 | SI4944DY        |
| 7U05 | 9340 425 20115 | BC847BS         |
| 7U07 | 9340 219 30115 | BC817-25W       |
| 7U10 | 9340 425 10115 | BC857BS         |
| 7U11 | 9322 192 16685 | TS2431AI        |
| 7U13 | 9340 425 30115 | BC847BPN        |
| 7U15 | 9340 425 20115 | BC847BS         |
| 7U27 | 9322 192 16685 | TS2431AI        |
| 7U28 | 9340 575 87118 | PHD38N02LT      |
| 7U29 | 9340 425 10115 | BC857BS         |
| 7V00 | 9352 800 63557 | PNX8550EH/M2/S1 |
| 7V01 | 9322 212 95671 | K4H561638F-UCCC |
| 7V02 | 9322 212 95671 | K4H561638F-UCCC |
| 7Z11 | 9352 115 40118 | 74LVC245APW     |
| 7Z12 | 9352 115 40118 | 74LVC245APW     |

Audio Panel [C]

Various

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|------|----------------|----------------|
| 1735 | 2422 025 16382 | Connector 3p m |
| 1736 | 4822 267 10735 | Connector 3p   |
| 1M02 | 2422 025 11244 | Connector 7p m |
| 1M52 | 2422 025 10769 | Connector 9p m |



|      |                |                    |
|------|----------------|--------------------|
| 2D00 | 3198 017 34730 | 47nF 16V 0603      |
| 2D01 | 5322 126 11578 | 1nF 10% 50V 0603   |
| 2D02 | 5322 126 11583 | 10nF 10% 50V 0603  |
| 2D03 | 2238 916 11552 | 1.5nF 5% 25V 0603  |
| 2D04 | 2238 916 11552 | 1.5nF 5% 25V 0603  |
| 2D05 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2D06 | 4822 124 80061 | 1000μF 20% 25V     |
| 2D07 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D08 | 4822 126 14247 | 1.5nF 50V 0603     |
| 2D09 | 4822 126 14247 | 1.5nF 50V 0603     |
| 2D10 | 2020 552 96828 | 470nF 20% 25V      |
| 2D12 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D13 | 4822 124 80061 | 1000μF 20% 25V     |
| 2D14 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D16 | 4822 122 33741 | 10pF 10% 50V       |
| 2D17 | 4822 122 33741 | 10pF 10% 50V       |
| 2D18 | 4822 122 33741 | 10pF 10% 50V       |
| 2D19 | 4822 122 33741 | 10pF 10% 50V       |
| 2D20 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D21 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D25 | 3198 017 34730 | 47nF 16V 0603      |
| 2D26 | 5322 126 11578 | 1nF 10% 50V 0603   |
| 2D27 | 5322 126 11583 | 10nF 10% 50V 0603  |
| 2D28 | 2238 916 11552 | 1.5nF 5% 25V 0603  |
| 2D29 | 2238 916 11552 | 1.5nF 5% 25V 0603  |
| 2D30 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2D31 | 4822 124 80061 | 1000μF 20% 25V     |
| 2D32 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D33 | 4822 126 14247 | 1.5nF 50V 0603     |
| 2D34 | 4822 126 14247 | 1.5nF 50V 0603     |
| 2D35 | 2020 552 96828 | 470nF 20% 25V      |
| 2D37 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D38 | 4822 124 80061 | 1000μF 20% 25V     |
| 2D39 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2D40 | 2222 580 15649 | 100nF 10% 50V 0805 |
| 2D44 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2D45 | 2238 586 59812 | 100nF 20% 50V 0603 |
| 2D46 | 4822 122 33761 | 22pF 5% 50V        |
| 2D47 | 4822 122 33761 | 22pF 5% 50V        |
| 2DD1 | 2020 552 94427 | 100pF 5% 50V       |
| 2DD2 | 5322 126 11583 | 10nF 10% 50V 0603  |
| 2DD4 | 4822 126 14247 | 1.5nF 50V 0603     |
| 2DD8 | 5322 126 11583 | 10nF 10% 50V 0603  |
| 2DF0 | 2022 552 05679 | 1μF 10% 16V 0805   |
| 2DF2 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2DF3 | 4822 126 14585 | 100nF 10% 0805 50V |
| 2DF9 | 5322 126 11583 | 10nF 10% 50V 0603  |



|      |                |                       |
|------|----------------|-----------------------|
| 3999 | 4822 051 30222 | 2.2kΩ 5% 0.062W       |
| 3D01 | 4822 051 30183 | 18kΩ 5% 0.062W        |
| 3D02 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3D05 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3D06 | 4822 117 11817 | 1.2kΩ 1% 0.0625W      |
| 3D07 | 4822 051 30681 | 680Ω 5% 0.062W        |
| 3D08 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3D09 | 4822 051 30223 | 22kΩ 5% 0.062W        |
| 3D10 | 4822 117 11817 | 1.2kΩ 1% 0.0625W      |
| 3D11 | 4822 051 30392 | 3.9Ω 5% 0.063W 0603   |
| 3D12 | 4822 117 13632 | 100kΩ 1% 0.0603 0.62W |
| 3D13 | 4822 051 30103 | 10kΩ 5% 0.062W        |

|       |                |                      |
|-------|----------------|----------------------|
| 3D14  | 4822 051 30561 | 560Ω 5% 0.062W       |
| 3D15  | 3198 013 03310 | 330Ω 20% 0.5W        |
| 3D16  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D17  | 2322 762 60107 | 0.1Ω 5% 2512         |
| 3D18  | 3198 021 34780 | 4.7Ω 5% 0603         |
| 3D19  | 4822 051 30333 | 33kΩ 5% 0.062W       |
| 3D26  | 4822 051 30183 | 18kΩ 5% 0.062W       |
| 3D27  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D30  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D31  | 4822 117 11817 | 1.2kΩ 1% 0.0625W     |
| 3D32  | 4822 051 30681 | 680Ω 5% 0.062W       |
| 3D33  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D34  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D35  | 4822 117 11817 | 1.2kΩ 1% 0.0625W     |
| 3D36  | 4822 051 30392 | 3.9Ω 5% 0.063W 0603  |
| 3D37  | 4822 117 13632 | 100kΩ 1% 0603 0.62W  |
| 3D38  | 4822 051 30103 | 10kΩ 5% 0.062W       |
| 3D39  | 4822 051 30561 | 560Ω 5% 0.062W       |
| 3D41  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D42  | 2322 762 60107 | 0.1Ω 5% 2512         |
| 3D43  | 3198 021 34780 | 4.7Ω 5% 0603         |
| 3D46  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D48  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D69  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3D70  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3DD0▲ | 5322 117 11726 | 10Ω 5%               |
| 3DD3  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3DD4  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3DD5  | 4822 051 30471 | 47Ω 5% 0.062W        |
| 3DD7  | 4822 051 30101 | 100Ω 5% 0.062W       |
| 3DF2  | 4822 117 12891 | 220kΩ 1%             |
| 3DF3  | 4822 117 12891 | 220kΩ 1%             |
| 3DF4  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DF5  | 4822 051 30272 | 2.7kΩ 5% 0.062W      |
| 3DF6  | 4822 051 30562 | 5.6kΩ 5% 0.063W 0603 |
| 3DF7  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DF8  | 4822 051 30272 | 2.7kΩ 5% 0.062W      |
| 3DF9  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG0  | 4822 051 30472 | 4.7Ω 5% 0.062W       |
| 3DG1  | 4822 051 30103 | 10kΩ 5% 0.062W       |
| 3DG2  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG3  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG4  | 4822 051 30682 | 6.8Ω 5% 0.062W       |
| 3DG5  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG6  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG7  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DG8  | 4822 051 30103 | 10kΩ 5% 0.062W       |
| 3DG9  | 4822 051 30223 | 22kΩ 5% 0.062W       |
| 3DH0  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DH1  | 4822 051 30222 | 2.2kΩ 5% 0.062W      |
| 3DH2  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DH4  | 4822 051 30333 | 33kΩ 5% 0.062W       |
| 3DH5  | 4822 117 12925 | 47kΩ 1% 0.063W 0603  |
| 3DH6  | 4822 051 30222 | 2.2kΩ 5% 0.062W      |
| 3DH7  | 4822 117 13632 | 100kΩ 1% 0603 0.62W  |



|      |                |                    |
|------|----------------|--------------------|
| 5D00 | 2422 536 00972 | 33μH 10% TSL1112   |
| 5D01 | 4822 157 11411 | Bead 80Ω at 100MHz |
| 5D02 | 4822 157 11411 | Bead 80Ω at 100MHz |
| 5D05 | 4822 157 11411 | Bead 80Ω at 100MHz |
| 5D06 | 4822 157 11411 | Bead 80Ω at 100MHz |
| 5D25 | 2422 536 00972 | 33μH 10% TSL1112   |
| 5D26 | 4822 157 11411 | Bead 80Ω at 100MHz |
| 5D27 | 4822 157 11411 | Bead 80Ω at 100MHz |



|      |                |        |
|------|----------------|--------|
| 6DF0 | 4822 130 11397 | BAS316 |
| 6DF1 | 4822 130 11152 | UDZ18B |
| 6DF2 | 4822 130 11397 | BAS316 |



|      |                |                |
|------|----------------|----------------|
| 7D00 | 9322 213 18668 | LM393PW        |
| 7D05 | 3198 010 42310 | BC847BW        |
| 7D06 | 3198 010 44350 | BC807-25W      |
| 7D07 | 3198 010 42310 | BC847BW        |
| 7D08 | 3198 010 42320 | BC857BW        |
| 7D09 | 9340 219 30115 | BC817-25W      |
| 7D10 | 9322 224 40668 | FET FDS4559_NL |
| 7D12 | 3198 010 42320 | BC857BW        |
| 7D30 | 3198 010 42310 | BC847BW        |
| 7D31 | 3198 010 44350 | BC807-25W      |
| 7D32 | 3198 010 42310 | BC847BW        |
| 7D33 | 3198 010 42320 | BC857BW        |
| 7D34 | 9340 219 30115 | BC817-25W      |
| 7D35 | 9322 224 40668 | FET FDS4559_NL |
| 7D37 | 3198 010 42320 | BC857BW        |
| 7DF0 | 3198 010 42310 | BC847BW        |
| 7DF1 | 3198 010 42310 | BC847BW        |

|      |                |         |
|------|----------------|---------|
| 7DF2 | 3198 010 42320 | BC857BW |
| 7DF3 | 3198 010 42310 | BC847BW |
| 7DF4 | 3198 010 42310 | BC847BW |
| 7DF5 | 3198 010 42310 | BC847BW |
| 7DF6 | 3198 010 42320 | BC857BW |
| 7DF7 | 9322 202 89668 | LM393P  |
| 7DF8 | 3198 010 42310 | BC847BW |
| 7DF9 | 3198 010 42310 | BC847BW |

Side I/O Panel [D]

Various

|      |                |                        |
|------|----------------|------------------------|
| 1001 | 2422 026 05133 | Connector SVHS 4p f    |
| 1002 | 2422 026 05807 | Sckt Cinch 3p f YeWhRd |
| 1005 | 2422 033 00486 | Socket USB 4p F        |
| 1010 | 4822 267 31014 | Sckt headphone         |
| 1H01 | 2422 033 00486 | Socket USB 4p F        |
| 1M37 | 2422 025 18735 | Connector 11p m        |



|      |                |                   |
|------|----------------|-------------------|
| 2003 | 2022 552 05679 | 1μF 10% 16V 0805  |
| 2004 | 3198 016 36810 | 680pF 25V 0603    |
| 2005 | 2020 552 94427 | 100pF 5% 50V      |
| 2006 | 3198 016 36810 | 680pF 25V 0603    |
| 2007 | 2020 552 94427 | 100pF 5% 50V      |
| 2008 | 2238 916 15641 | 22nF 10% 25V 0603 |
| 2009 | 5322 126 11583 | 10nF 10% 50V 0603 |
| 2010 | 2238 916 15641 | 22nF 10% 25V 0603 |
| 2011 | 5322 126 11583 | 10nF 10% 50V 0603 |



|      |                |                     |
|------|----------------|---------------------|
| 3000 | 4822 051 30759 | 75Ω 5% 0.062W       |
| 3004 | 4822 051 30759 | 75Ω 5% 0.062W       |
| 3008 | 4822 051 30222 | 2.2kΩ 5% 0.062W     |
| 3009 | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 3010 | 4822 051 30333 | 33kΩ 5% 0.062W      |
| 3011 | 4822 051 30392 | 3.9Ω 5% 0.063W 0603 |
| 3012 | 4822 051 30102 | 1kΩ 5% 0.062W       |
| 3013 | 4822 051 30333 | 33kΩ 5% 0.062W      |
| 3016 | 4822 051 30103 | 10kΩ 5% 0.062W      |
| 3020 | 4822 051 30103 | 10kΩ 5% 0.062W      |



|      |                |                     |
|------|----------------|---------------------|
| 5000 | 2422 549 44197 | Bead 220Ω at 100MHz |
|------|----------------|---------------------|



|      |                |         |
|------|----------------|---------|
| 6000 | 4822 130 11416 | PDZ6.8B |
| 6001 | 4822 130 11416 | PDZ6.8B |
| 6002 | 4822 130 11416 | PDZ6.8B |
| 6003 | 4822 130 11416 | PDZ6.8B |
| 6004 | 4822 130 11416 | PDZ6.8B |
| 6005 | 4822 130 11416 | PDZ6.8B |
| 6006 | 4822 130 11416 | PDZ6.8B |
| 6007 | 4822 130 11416 | PDZ6.8B |
| 6008 | 4822 130 11416 | PDZ6.8B |
| 6009 | 4822 130 11416 | PDZ6.8B |
| 6010 | 4822 130 11416 | PDZ6.8B |
| 6011 | 4822 130 11416 | PDZ6.8B |

Control Panel [E]

Various

|      |                |                    |
|------|----------------|--------------------|
| 1701 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1702 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1703 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1704 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1705 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1706 | 4822 276 13775 | Switch 1p 0.1A 12V |
| 1M01 | 4822 267 10459 | Connector 3p       |
| 8101 | 3104 311 06551 | Cable 3p/1300/3p   |



|      |                |                      |
|------|----------------|----------------------|
| 3002 | 4822 051 30151 | 150Ω 5% 0.062W       |
| 3003 | 4822 051 30391 | 390Ω 5% 0.062W       |
| 3004 | 4822 051 30561 | 560Ω 5% 0.062W       |
| 3005 | 3198 021 31820 | 1.8kΩ 5% 0.062W 0603 |
| 3006 | 4822 117 12968 | 820Ω 5% 0.62W        |
| 3999 | 4822 117 12968 | 820Ω 5% 0.62W        |

LED Panel

Various

|      |                |                |
|------|----------------|----------------|
| 1040 | 9322 223 97668 | TSOP36236 IR   |
| 1M21 | 2422 025 18753 | Connector 6p m |



|      |                |               |
|------|----------------|---------------|
| 2040 | 4822 124 12095 | 100μF 20% 16V |
| 2070 | 4822 124 12095 | 100μF 20% 16V |



|      |                |                     |
|------|----------------|---------------------|
| 3040 | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 3041 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3042 | 3198 031 06820 | 6.8kΩ 5% 0.01W 0402 |
| 3051 | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 3053 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3055 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3058 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3059 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3061 | 4822 117 13597 | 330Ω 5% 0.01W 0402  |
| 3063 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3065 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3068 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3069 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3071 | 4822 117 13603 | 33kΩ 5% 0402        |
| 3072 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3074 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3077 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 3079 | 2322 705 70475 | 4.7MΩ 5% 0402       |
| 3999 | 4822 117 13606 | 10kΩ 5% 0.01W 0402  |
| 9120 | 4822 117 13605 | Jumper 0402         |
| 9121 | 4822 117 13605 | Jumper 0402         |



|      |                |          |
|------|----------------|----------|
| 6051 | 4822 130 83915 | TLMV3100 |
|------|----------------|----------|



|      |                |          |
|------|----------------|----------|
| 7051 | 3198 010 42310 | BC847BW  |
| 7052 | 4822 130 60373 | BC856B   |
| 7061 | 3198 010 42310 | BC847BW  |
| 7062 | 4822 130 60373 | BC856B   |
| 7070 | 9322 218 83685 | TEMT6000 |
| 7071 | 3198 010 42310 | BC847BW  |

# 11. Revision List

## Manual xxxx xxx xxxx.0

- First release.

## Manual xxxx xxx xxxx.1

- **Chapter 5:** Explanation of error 2 changed.
- **Chapter 5:** In paragraph: Upgrade via PC and ComPair interface; bits per second changed in 38400
- **Chapter 8:** Service options and option code overview modified and text in paragraph **IF PLL Offset** changed.
- **Chapter 10:** Spare parts list added.